

Fishery Management Report No. 39

Management Plan for the Lynn Canal (District 15) Drift Gillnet Fishery, 2005

by

Randall L. Bachman

June 2005

Alaska Department of Fish and Game

Divisions of Sport Fish and Commercial Fisheries



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Weights and measures (metric)		General		Measures (fisheries)	
centimeter	cm	Alaska Administrative		fork length	FL
deciliter	dL	Code	AAC	mideye-to-fork	MEF
gram	g	all commonly accepted		mideye-to-tail-fork	METF
hectare	ha	abbreviations	e.g., Mr., Mrs., AM, PM, etc.	standard length	SL
kilogram	kg			total length	TL
kilometer	km	all commonly accepted			
liter	L	professional titles	e.g., Dr., Ph.D., R.N., etc.	Mathematics, statistics	
meter	m	at	@	<i>all standard mathematical</i>	
milliliter	mL	compass directions:		<i>signs, symbols and</i>	
millimeter	mm	east	E	<i>abbreviations</i>	
		north	N	alternate hypothesis	H _A
Weights and measures (English)		south	S	base of natural logarithm	<i>e</i>
cubic feet per second	ft ³ /s	west	W	catch per unit effort	CPUE
foot	ft	copyright	©	coefficient of variation	CV
gallon	gal	corporate suffixes:		common test statistics	(F, t, χ^2 , etc.)
inch	in	Company	Co.	confidence interval	CI
mile	mi	Corporation	Corp.	correlation coefficient	
nautical mile	nmi	Incorporated	Inc.	(multiple)	R
ounce	oz	Limited	Ltd.	correlation coefficient	
pound	lb	District of Columbia	D.C.	(simple)	r
quart	qt	et alii (and others)	et al.	covariance	cov
yard	yd	et cetera (and so forth)	etc.	degree (angular)	°
		exempli gratia	e.g.	degrees of freedom	df
Time and temperature		(for example)		expected value	<i>E</i>
day	d	Federal Information	FIC	greater than	>
degrees Celsius	°C	Code		greater than or equal to	≥
degrees Fahrenheit	°F	id est (that is)	i.e.	harvest per unit effort	HPUE
degrees kelvin	K	latitude or longitude	lat. or long.	less than	<
hour	h	monetary symbols		less than or equal to	≤
minute	min	(U.S.)	\$, ¢	logarithm (natural)	ln
second	s	months (tables and		logarithm (base 10)	log
		figures): first three		logarithm (specify base)	log ₂ , etc.
Physics and chemistry		letters	Jan,...,Dec	minute (angular)	'
all atomic symbols		registered trademark	®	not significant	NS
alternating current	AC	trademark	™	null hypothesis	H ₀
ampere	A	United States		percent	%
calorie	cal	(adjective)	U.S.	probability	P
direct current	DC	United States of		probability of a type I error	
hertz	Hz	America (noun)	USA	(rejection of the null	
horsepower	hp	U.S.C.	United States	hypothesis when true)	α
hydrogen ion activity	pH		Code	probability of a type II error	
(negative log of)		U.S. state	use two-letter	(acceptance of the null	
parts per million	ppm		abbreviations	hypothesis when false)	β
parts per thousand	ppt, ‰		(e.g., AK, WA)	second (angular)	"
				standard deviation	SD
volts	V			standard error	SE
watts	W			variance	
				population	Var
				sample	var

FISHERY MANAGEMENT REPORT NO. 05-39

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GILLNET FISHERY, 2005**

by

Randall L. Bachman,
Alaska Department of Fish and Game, Haines

Alaska Department of Fish and Game
Division of Sport Fish, Research and Technical Services
333 Raspberry Road, Anchorage, Alaska, 99518-1599

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*Randall L. Bachman,
Alaska Department of Fish and Game, Commercial Fisheries Division, Region 1
Mile 1 Haines Highway, P.O. Box 330, Haines, AK 99827-0330, USA*

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ABSTRACT

This document describes plans for the management of the 2005 Lynn Canal drift gillnet fishery. The Lynn Canal drift gillnet fishery targets sockeye, summer chum, coho, and fall chum salmon. Chinook and pink salmon are harvested as incidental catch. The overall management goal is to achieve desired spawning escapement levels while harvesting the available surplus for a long-term maximum sustainable yield of all Lynn Canal salmon stocks. Total expected returns of Chilkat Lake sockeye salmon to District 15 are expected to be below average in 2005. The department anticipates implementing conservative measures to reduce the harvest rate on this stock.

The purpose of this plan is to provide commercial fishers and processors with a general idea of how the fishery may be managed, what options are available to the manager, the conditions that trigger major management actions and an idea of the expected run size of targeted salmon stocks. This plan will also serve as a reference that consolidates important historical harvest and escapement data and current fisheries information.

Key words: salmon, drift gillnet fishery, Lynn Canal (District 15), management plan.

INTRODUCTION

This document describes plans for the management of the 2005 Lynn Canal drift gillnet fishery. The purpose of this plan is to provide commercial fishers and others with a general idea of how the fishery may be managed, what options are available to the manager, the conditions that trigger major management actions and an idea of the expected run size of targeted salmon stocks to the. This plan will also serve as a reference that consolidates important historical harvest and escapement data and current fisheries information.

The Lynn Canal drift gillnet fishery targets sockeye, summer chum, coho, and fall chum salmon. Chinook and pink salmon are harvested as incidental catch. The sockeye run in Lynn Canal has historically been among the largest in Southeast Alaska. The coho run to the Chilkat River is among the largest in northern Southeast Alaska. Currently sockeye salmon, Lynn Canal coho and fall chum salmon stocks are healthy. During recent years, total returns of Chilkoot Lake sockeye salmon have improved and fishing effort has been directed on this stock. Returns of fall chum salmon have been at low levels from 1989 to 1999. Fall chum salmon escapements based on fish wheel catch and escapement surveys and results from a mark-recapture project starting in 2002 have indicated improved total returns of this stock. The department initiated a mark-recapture project for Chilkat and Klehini River Fall chum salmon stocks in 2002. This work has estimated escapements of 204,081 adult chum salmon in 2002, 165,721 in 2003 and 309,520 in 2004 (Bachman, *In prep*).

FISHERY AREA

The Lynn Canal drift gillnet fishery occurs in the waters of District 15. The district is divided into three regulatory sections: 15-A (upper Lynn Canal), 15-B (Berners Bay), and 15-C (lower Lynn Canal). These regulatory sections are further divided into seven statistical areas (Figure 1).

CONTRIBUTING STOCKS

Stocks targeted by the gillnet fishery and the harvest timing are as follows:

1. Sockeye salmon contribute to the fishery from June through early September. The primary stocks originate in Chilkat and Chilkoot lakes (Figure 2). Sockeye salmon originating from the Berners Bay rivers, the mainstem of the Chilkat, and other relatively minor, local stocks are also harvested in the fishery. Both Chilkat and Chilkoot lakes have two separate stock groups, (early and a late components). Those stock groups are managed separately to achieve run-specific escapement goals. The

return timing for the Chilkat and Chilkoot lake sockeye salmon stocks in the Lynn Canal drift gillnet fishery is presented in detail in Figure 3.

2. Summer chum, predominately from hatchery enhancement programs, and wild pink salmon stocks are both harvested from late June through July. The return timing for summer chum and pink salmon stocks to the Lynn Canal drift gillnet fishery is shown in Figure 4.
3. Fall chum and coho salmon are harvested from September through early-October. The primary fall chum salmon stocks originate in the Klehini and Chilkat rivers. The primary coho salmon stocks originate in the Chilkat River and rivers within Berners Bay. The return timing for fall chum and coho salmon stocks to the Lynn Canal drift gillnet fishery is also shown in Figure 4.

Region wide in southeast Alaska, the drift gillnet fishery is limited annually to 7,600 “Treaty” king salmon, which does not include Alaskan hatchery produced fish (5 AAC 29.060)(b)(2)). The commercial drift gillnet catch of king salmon has been well below this allocation from 1998 through 2003 but exceed this allocation in 2004 with an estimated harvest of 9,350 fish. In 2003, the Board of Fisheries adopted the Lynn Canal and Chilkat River King Salmon Fishery Management Plan (5 AAC 33.384, shown in Appendix A1). This plan establishes management measures in subsistence, commercial, and sport fisheries, which harvest Chilkat River Chinook salmon based on a preseason projected inriver forecast. The established biological escapement goal of 1,750 to 3,500 large king salmon (three ocean age and older) provides the framework for action points under the plan. The provisions in the management plan are identical to methods the department has used to managed the gillnet fishery in Section 15-A in recent years. The return timing for Chinook salmon stocks harvested by the Lynn Canal drift gillnet fishery is shown in Figure 4.

Historical catches for sockeye, coho, pink, chum, and Chinook salmon in the Lynn Canal drift gillnet fishery are shown in Table 1 and Figure 5

REGULATORY DECISION PROCESS

The fishery opens by regulation at 12:01 p.m. on June 19, the third Sunday of June (statistical week 26, Appendix B1). Weekly fishing periods are established by emergency order and announced to the public by department news releases that are generally issued on Thursday afternoons.

GENERAL GOAL

The overall management goal is to achieve desired spawning escapement levels while harvesting the available surplus for a long-term maximum sustainable yield of all Lynn Canal salmon stocks. Stock specific escapement goals have been established for the Chilkoot and Chilkat lake sockeye salmon stocks. Escapement to Chilkoot Lake is monitored by a weir located on the outlet of Chilkoot Lake. The sockeye salmon escapements to Chilkat River and Chilkat Lake are monitored using fish wheels operated in the lower Chilkat River. Total escapement is estimated using mark-recapture methodologies for Chilkat River drainage sockeye salmon.

MANAGEMENT GOALS

Specific management goals for the 2005 Lynn Canal drift gillnet fishery are as follows:

1. Obtain an escapement of between 50,500 and 91,500 sockeye salmon to Chilkoot Lake. The escapement objective for the early stock is 16,500 fish through week 28 (July 9) and 34,000 for the late stock (Table 2).
2. Obtain an escapement of between 52,000 and 106,000 sockeye salmon to Chilkat Lake. The escapement objective for the early stock is 17,500 fish through week 33 (August 13) and 47,500 for the late stock.
3. Manage the commercial drift gillnet fishery in a manner that is consistent with the Lynn Canal and Chilkat River king salmon fishery management plan. Obtain an escapement of between 1,750–3,500 three-ocean age and older king salmon to the Chilkat River.
4. Obtain a peak foot escapement count between 4,000 and 9,200 coho salmon to Berners River.
5. Provide for sufficient chum, coho, and pink salmon spawning escapements to the Chilkat, Chilkoot, and Berners rivers and other Lynn Canal systems, while harvesting those fish in excess of escapement needs.
6. Harvest all DIPAC hatchery-produced chum salmon available in the Boat Harbor Terminal Harvest Area.

2005 OUTLOOK

CHILKAT RIVER DRAINAGE SOCKEYE SALMON

The 2005 total forecast return of Chilkat Lake sockeye salmon is approximately 84,000 fish (Table 3), the expected return is 40% of the 1976 to 2004 historical average of 213,800 fish (Table 4) and the lowest total return forecast on record. However, the 2005 run size of Chilkat River mainstem sockeye salmon are expected to be above average during 2005.

Although escapement estimates to Chilkat Lake were above or within the biological escapement goal range for the dominant broods years (1999 and 2000, Table 5, Figure 6, bottom), the smolt estimate during 2002 was the lowest estimate on record indicating that returns of 3-ocean age fish will be weak in 2005. Historically, 71.4% of the Chilkat Lake sockeye salmon escapements are 3-ocean age fish (32% are age-1.3 fish, 39.1% are age-2.3 fish and 0.3% are age-3.3 fish) (Appendix C1, top). Sockeye salmon smolt production from Chilkat Lake in 2002 and 2003, the dominant smolt years for the 2004 return, were estimated to be 0.43 million fish and 1.45 million fish, respectively. These smolt abundance estimates are 25% and 85%, respectively, of the historical 1989–1990 and 1994–2004 average of 1.8 million (Table 6a). The average weight and length of age-1.0 Chilkat Lake sockeye salmon smolt in 2002 and 2003 were below average (Table 6b).

Mark-recapture estimates of the Chilkat River mainstem sockeye salmon escapements in 2000, 2001, and 2002, (the dominant parent-years) were 54,300 21,900, and 41,000 fish, respectively (Table 7). The estimates of abundance for the 2005 return were well below the historical 1994–2004 average of 32,700 fish for brood year 2001 but well above average years 2000 and 2002. The year 2000 abundance estimate is the highest on record. The dominant age classes for this run includes age-0.2 (19.6%), 0.3 (38.4%), and age-1.3 (31.2%) fish (Appendix C2). The proportion

of age-1.2 of the 2004 escapement was the second highest on record indicating that the 2005 return of age-1.3 fish to the mainstem Chilkat River may be significantly larger than average. The Lower Chilkat River fish wheel project has been providing inseason stock assessment and post-season escapement estimates of Chilkat River mainstem sockeye salmon since 1994 (Bachman and McGregor 2001).

CHILKOOT SOCKEYE SALMON

Returns of Chilkoot Lake sockeye salmon in 2005 are expected to be near the long-term average of approximately 169,000 fish (Table 8). The Chilkoot Lake sockeye salmon weir count during the dominant parental brood year (2000) for the 2005 return was 43,600 fish (7,900 early run and 35,700 late run; Table 9). The early run was below escapement goals but the late run just exceeded the lower end of the escapement goal range (Figure 6, top). The Chilkoot River weir is used to monitor this stock inseason (Kelley and Bachman, 1999).

Although the 2001 fall hydroacoustic estimate was below average, zooplankton abundance was well above average during 2001; the dominant brood year sockeye salmon juveniles would have been rearing in the lake (Table 10; Figure 7). The estimated average size of smolt leaving the lake in 2002 for age 1.0 and 2.0 was near average. Management will be monitoring the escapements during 2005 closely and will implement management decisions to the commercial drift gillnet salmon fishery to target escapement levels near the mid-point of the escapement goal range for Chilkoot Lake sockeye salmon.

While the indicators listed above suggest a better return for this year, it should be noted that the dominant parent year escapement (2000) was poor, fourth lowest on record and the 2001 fall hydroacoustic estimate of pre-smolt was well below average. The total return of Chilkoot Lake sockeye salmon in 2000 was also the fourth lowest on record. Age composition of the 2004 escapement was near average for most of the dominant age classes (Appendix C1, bottom). Given this information, the department will continue to base management decisions for the District 15 drift gillnet fishery on inseason data.

BERNERS SOCKEYE SALMON

An average run of Berners Bay sockeye salmon is expected in 2005. Total escapement estimates are not available for Berners Bay sockeye salmon systems. Peak aerial escapements to Berners Bay streams were above average for all brood years. The average dominant age classes for Berners Bay streams are age-0.3 (15.4%), 1.2 (13%), and age-1.3 (67.4%)(Appendix C3). The dominant age classes of the 2004 escapement were near the historical average. The 2000 and 2001 commercial harvest of Berners Bay and Chilkat River mainstem sockeye salmon was estimated at 26,900 and 21,400 fish respectively. This harvest was well above the historic 1976–2004 average harvest of 14,400 fish (Table 11).

SUMMER CHUM SALMON

Projections for the Boat Harbor Terminal Harvest Area in 2005 are approximately 277,000 fish, an increase compared with 2004 and 1.9 times the 1991–2004 average (Table 13). The preliminary projection for the Amalga Harbor project is approximately 489,000 fish, 44% of the 1994–2004 average of 1,097,700 fish (Table 13). The well below average projected return to the Amalga Harbor release site is due mostly to poor rearing and release conditions at Amalga Harbor in the spring of 2002. Based on parental-year escapement counts, the wild summer chum

salmon return in 2005 should be average to above average in run strength but at a much lower scale than the hatchery summer chum salmon return.

The majority of the summer chum salmon harvest in lower Lynn Canal is comprised of hatchery fish from remote release sites at Boat Harbor and Amalga Harbor. Smaller numbers of wild chum salmon are produced from local area streams such as Sawmill Creek and other Berners Bay rivers on the eastern side of Lynn Canal. The Endicott, Beardslee, and St. James rivers located on the western side of Lynn Canal are also important contributor to the wild summer chum salmon to the drift gillnet fishery.

Douglas Island Pink and Chum Salmon Inc. (DIPAC) has been operating chum salmon remote release sites at Boat Harbor and Amalga Harbor since 1988 and 1991, respectively (Table 12). The contribution to the lower Lynn Canal drift gillnet fishery have averaged 337,500 hatchery chum salmon for years 1991–2004 (Table 13). Recently, hatchery chum salmon contributions to the drift gillnet fleet has exceeded this average.

Peak aerial escapement counts of summer chum salmon in Sawmill Creek in 2000, 2001, and 2002 were 13,000, 720, and 399 fish respectively. The peak aerial escapements are well above the 1995–2004 average for this index system in the year 2000 and below average for brood years 2001 and 2002 (Figure 8). Cumulative peak counts of chum salmon in western Lynn Canal streams in brood years 2000, 2001, and 2002 were 4,680, 7,100, and 8,600 fish respectively. All peak counts conducted during these brood years exceeded the prior-ten-year average (Figure 9).

FALL CHUM SALMON

The 2005 return of fall chum salmon stocks is expected to be above average. For the Chilkat River, the peak aerial survey counts were 61,200 and 3,200 fish (2000 and 2001), well above the peak aerial escapement average of 15,800 for the year 2000 but well below this average in brood year 2001. Peak aerial counts in the Klehini River were 16,900 and 1,600 fish respectively. The escapements during the dominant parental broods years were well above average in 2000 and well below average in 2001.

The fishery performance in the dominant parental brood years (2000 and 2001) was above the 10-year average. Escapements of Chilkat River fall chum salmon since 1999 have improved. Management strategies designed to reduce harvests of these stocks have been successful. Fish wheel counts, mark-recapture estimates and aerial escapement surveys have indicated an increasing trend in escapement since 1999.

COHO SALMON

The Lynn Canal coho salmon return is expected to be average during 2005. Coho salmon systems in the area include the Chilkat River, Berners River and Chilkoot River. Parent-year survey counts at the Chilkat River tributaries and Chilkoot River drainage were generally above the ten-year average. The 2002 mark-recapture estimate for Chilkat River drainage coho salmon was 209,300, the highest estimate on record. The 2001 and 2002 escapements to Berners Bay were within and above the escapement goal range of 4,000 to 9,200 fish.

Sport Fish Division has been conducting coho salmon smolt coded wire-tagging (CWT) studies on the Chilkat River to estimate smolt size, age structure, and production of coho salmon smolts since 1999 (Ericksen, 2003). The 2004 trap CPUE of coho smolt of 3.8 smolt/trap-day was well below the 1999–2003 average of 5.7 fish/trap-day indicating that the record escapement in 2002 possibly led to decreased production of Chilkat River coho salmon (Randy Ericksen, personal

communication). The 2001 and 2002 Chilkat River fish wheel catch of 2,550 and 5,090 coho exceeded the 1994–2004 average for both years (Figure 10). The District 15 gillnet catch of 34,200 coho salmon in 2001 and 77,900 in 2002 (Table 1) was approximately 73% of the previous ten-year average for 2001 and 1.7 times this average in 2002.

Escapement estimates during the parental brood years for the 2005 return were above the escapement goal range. Jack coho salmon returns in 2004 were well above average for Berners Bay streams (Leon Shaul, personal communication).

In 2002 (The dominant brood year for the 2005 return), just prior to removing the Chilkoot River weir, the cumulative coho salmon Chilkoot River weir count through September 11 was the highest on record. This indicated a strong early return of coho salmon to that system (Bachman and Sogge, *In Prep.*). In most years the weir was operated primarily for sockeye salmon and have been removed prior to the peak of the coho salmon return (Appendix E1).

CHINOOK SALMON

The 2005 preseason forecast for mature (\geq age 1.3) Chilkat River Chinook salmon is estimated to be above the upper range of the biological escapement goal of 1,750–3,600 fish. The Alaska Board of Fisheries adopted the Lynn Canal and Chilkat River king salmon fishery management plan at the last meeting in Ketchikan during February 2003 (Appendix A1). This plan provides the framework necessary to manage the existing fisheries that harvest Chilkat drainage Chinook salmon for desired escapement. Management actions have been implemented to reduce the incidental take of Chilkat River Chinook salmon. These management actions have been effective in conserving Chilkat River Chinook salmon stocks as the biological escapement goal has been met or exceeded each year since 1991.

2005 MANAGEMENT APPROACH

FISHERY OPENINGS

In 2005, the department intends to manage the summer Lynn Canal drift gillnet fishery to obtain the mid-points of the escapement goal ranges for early and late stocks of Chilkoot Lake and Chilkat Lake sockeye salmon. The department intends to manage the fishery to minimize harvest of Chilkat Lake sockeye salmon through the summer season in 2005. Expected below average returns of Chilkat Lake sockeye salmon will influence management decisions. The fall Lynn Canal drift gillnet fishery will be managed to conserve fall chum salmon while providing opportunity to harvest coho salmon.

Section 15-A

Section 15-A will open for two days south of the latitude of Seduction Point beginning 12:01 p.m., Sunday June 19 (Statistical Week 26) with no mesh restriction. If the Chilkoot River weir count through June 16 is less than 4,500 sockeye salmon, the eastern side of Section 15-A will be closed. If the weir count is 4,500 sockeye salmon or greater, the eastern portion of 15-A may be opened. During the first three weeks of the season, Chilkat Inlet will be managed in accordance to the Chilkat River King Salmon Fishery Management Plan (Appendix A1). The first week of the season, Chilkat Inlet will be closed north of the latitude of Seduction Point. In week 27, Chilkat Inlet will be open south of the latitude of Glacier Point. In week 28, Chilkat Inlet will be open south of the latitude of Cannery Point. It is likely that the northern boundary line in Chilkat Inlet will remain at Cannery Point for the remainder of the summer season if escapements of

Chilkat Lake sockeye salmon are projected to be within the desired goal range. If the Chilkoot Lake sockeye salmon return is strong, all of Section 15-A south of the latitude of Seduction point may be opened during the fourth week of the season for 2 or 3 days. Based on the poor expected return of Chilkat Lake sockeye salmon in 2005, fishing opportunity along the western shoreline of Section 15-A will be limited to 2 or 3 days. Chilkat River mainstem fish have a return timing that overlaps the Chilkat Lake early sockeye salmon run (mainstem sockeye salmon are predominantly age 0, Chilkat Lake early run fish are predominantly age 1, and Chilkat Lake late run fish are predominantly age 2, Figure 11). The Chilkat River mainstem sockeye salmon return is expected to be above average. Fishing effort will target this stock during the first four weeks in western Section 15-A.

Additional fishing opportunity in Chilkoot Inlet north of the latitude of Mud Bay Point for 2 or 3 days in weeks 31 through 37 may be possible if the Chilkoot Lake sockeye salmon return as expected. If the Chilkat Lake sockeye salmon return is worse than expected (run not forecasted to meet minimum escapement goals), limits in time and area of Section 15-A will be implemented until the department can project sockeye escapement within desired goal ranges. Data from the Chilkat River fish wheel mark-recapture program will be used to judge run strength inseason and escapement levels post season.

Fall fishery management in Section 15-A will begin from week 35 until the end of the season. As in recent years, the northern boundary line in Section 15-A will move southward in stages as the coho and fall chum stocks begin to migrate back to parental streams. Depending on effort levels, coho and chum salmon run strength, fishing opportunity in Section 15-A may be similar to openings in 2004.

Section 15-B

Based on the preseason forecast for coho salmon to Berners Bay, Section 15-B may be opened from week 38 to the end of the season south of the latitude of Cove Point (Figure 12) for 2 or 3 days each. Inseason information collected from coded wire tag recoveries and commercial harvest from various gear types will provide the data to manage fishing opportunity in Section 15-B.

Section 15-C

Section 15-C will open for two days beginning 12:01 p.m., Sunday, June 19 with no mesh restriction. If the Chilkoot River weir count is less than 4,500 sockeye salmon through June 16, the eastern side of Section 15-C will be closed north of the latitude of Bridget Point (excluding the Boat Harbor area).

Due to the expected below average returns of Chilkat Lake sockeye salmon, open fishing time in Section 15-C will be limited to 2 or 3 days (except for the Boat Harbor area). If inseason projections for the Chilkat Lake sockeye salmon return are below the escapement goal range, it is possible that additional time, area and gear restrictions are placed in Section 15-C during the summer season.

If sockeye salmon escapement fall short of inseason escapement objectives, openings of the small area in eastern Section 15-C defined as: the waters of Section 15-C from the eastern shoreline of Lynn Canal at the latitude of Vanderbilt Reef Light to Vanderbilt Reef Light and east of a line from Vanderbilt Reef Light to Little Island Light, (Figure 12) may occur on the 3rd or 4th day during peak weeks (statistical weeks 27 through 31) of the hatchery chum salmon return. This

strategy will be used to provide opportunity to harvest summer chum salmon while reducing the harvest of sockeye salmon in Section 15-C. The decision to use this strategy will be considered inseason based on Chilkat River fish wheel counts, Chilkat Lake weir counts and results from site-specific sampling of the commercial fishery.

The Boat Harbor Terminal Harvest Area (THA) will be opened for extended periods beginning in week 28, (July 3). The THA is shown in Figure 13 and is defined as: those waters within two nautical miles of the western shoreline of Lynn Canal south of the latitude of Danger Point at 58°41.73' N. latitude and north of a point 2.4 miles north of Point Whidbey at 58°37.05' N. latitude. The northern line of the Boat Harbor area will remain at the latitude of Danger Point through week 31. The purpose of this change in area is to decrease the exploitation rate on wild Endicott River and other western Lynn Canal wild chum salmon stocks that migrate through this area during the early summer season. This action has been in place for the last three seasons. Escapements of wild chum salmon to the Endicott River have improved because of this action.

The area within the Boat Harbor area west of a line from the entrance to the Boat Harbor proper area will be opened continuously beginning the first week of the season. This strategy will be used to harvest expected large returns of hatchery chum salmon while fish are bright while there is no risk to natural salmon stocks. Fall season management will begin in late August or early September in Section 15-C. Management of Section 15-C during the fall season will be based on coho and chum salmon overall run strength and fishing effort levels. Fishing effort will be directed at harvesting coho salmon in Section 15-C while limiting the harvest of fall chum salmon. Fishing time will be limited from 2 to 4 days each, beginning in statistical week 34.

Other Comments

To avoid gear conflicts, the District 15 drift gillnet fishery will not be open concurrent with the Juneau Golden North Salmon Derby. Consequently, during Statistical Week 33, the District 15 gillnet fishery will not open until Monday, August 8.

Stock Assessment Projects

The Haines Commercial Fisheries Division's salmon stock assessment projects include the Chilkoot River weir, Chilkat River fish wheels, Chilkat Lake weir and the marine fishery performance project. Funding for the Chilkat River fish wheels and Chilkat Lake weir is through grants from the Southeast Sustainable Salmon Fund (SSSF) (Bachman, *In Prep*). Funding for the Chilkoot River weir and marine fishery performance projects are supported through the general fund. SSSF funding to operate the Chilkat River fish wheel and Chilkat Lake weir projects are currently secured through FY 06.

Information collection from the Chilkat River fish wheel, Chilkoot River weir and marine fishery performance projects form the inseason escapement and commercial catch information system used to make fishery decisions to manage the drift gillnet fishery in District 15.

The fish wheel project is also used to annually assess the spawning escapements of Chilkat Lake and Chilkat River mainstem sockeye salmon through mark-recapture experiments. Sockeye salmon are marked at the fish wheels and ratios of marked to unmarked sockeye salmon are determined from recaptured fish at the Chilkat Lake weir and on Chilkat River mainstem spawning areas to develop estimates of escapement for these stocks. Since this program began in 1994, the average (1994–2004) escapement to Chilkat Lake and Chilkat River mainstem areas is estimated at 181,800 and 32,700, respectively, using mark-recapture methods.

A mark-recapture project utilizing the Chilkat River fish wheels began in 2002 to measure the abundance of fall chum salmon from June 8 through October 19. Over the past three years, this mark-recapture study has documented escapements of approximately 204,100 in 2002, 165,700 in 2003, and 309,520 in 2004. The department will operate the fish wheel program late into the fall season to conduct the final year of mark-recapture work on fall chum salmon in 2005. This information will be used to correlate fish wheel catch and aerial escapement surveys to estimates of abundance based on the 2002–2005 mark-recapture work.

NSRAA will conduct mark-recapture work on out-migrating Chilkat Lake sockeye salmon smolt during the spring of 2005 at the Chilkat Lake weir site. This information is critical to assess the rearing health of Chilkat Lake, to estimate the total emigration of Chilkat Lake sockeye salmon, and to forecast future returns of the Chilkat Lake sockeye salmon stock. This will be the final year of NSRAA involvement with Chilkat Lake. The department will operate the Chilkat Lake weir in 2005 to sample returning adult Chilkat Lake sockeye salmon as part of the Chilkat River drainage mark-recapture escapement estimation and marine sockeye salmon stock separation programs.

The Chilkoot Lake weir project has been in operation since 1976 to assess the inseason Chilkoot Lake sockeye salmon escapement. Since 1996, mark-recapture methods have been employed in conjunction with weir counts as a secondary, postseason estimate of spawning abundance. The weir count has been well below the lower end of the 95% confidence level of the mark-recapture estimate in all but two years (1996 and 2002) of this study (Table 14). The reason for the discrepancy between the weir count and mark-recapture estimates is unclear. Some possible reasons include:

1. the inability to adequately sample the later portion of the run as probabilities of capturing the later portion of the spawning population is different from the early portion,
2. the fish marked at the Chilkoot weir does not represent the natural spawning population on spawning grounds in Chilkoot Lake,
3. and/or a very large proportion of the sockeye salmon run migrate through the weir undetected.

Radio telemetry studies have been employed in the Chilkat River drainage in recent years to help biologists understand the run timing and spawning distribution of Chinook, sockeye and coho salmon. A similar study conducted on Chilkoot Lake sockeye salmon would be very useful in understanding the differences in the two techniques used to estimate spawning abundance of Chilkoot Lake sockeye salmon. It is hopeful that funding to conduct a radio telemetry study for Chilkoot Lake sockeye to fully understand the precision of escapement methods used to evaluate this stock.

As in previous years, the department's management crews as part of the marine fishery performance project will be on the fishing grounds during commercial fishing periods to sample sockeye and king salmon and to monitor the fishery during each opening. The department requests that commercially caught sockeye and king salmon are retained in separate fish holds or totes so department staff can collect scale and length data from targeted fish while out at sea monitoring the fishery. The sockeye salmon scale samples that are collected from the commercial gillnet fishery form the basis of our stock separation analysis resulting in sound

management decisions. The department vessels stand by on **channel 10 VHF** when on the fishing grounds.

Please report commercial fisheries violations to the Bureau of Wildlife Enforcement at (907) 766-2533 (Haines), (907) 465-4000 (Juneau).

REFERENCES CITED

- Bachman R.L. 2005. Stock assessment studies of Chilkat River salmon stocks in 2003 and 2004. Alaska Department of Fish and Game, Division of Commercial Fisheries, Fishery Data Series Report. *In prep.*
- Bachman R.L. 2005. Stock assessment studies of Chilkat River salmon stocks in 2002. Alaska Department of Fish and Game, Division of Commercial Fisheries, Fishery Data Series Report. *In prep.*
- Bachman R. L. and A. J. McGregor. 2001. Stock assessment studies of Chilkat River salmon stocks in 1999. Alaska Department of Fish and Game, Division of Commercial Fisheries, Regional Information Report 1J01-36, Juneau.
- Bachman R.L. and M. M. Sogge 2005. Chilkoot River Weir Results, 1999 to 2003. Alaska Department of Fish and Game, Division of Commercial Fisheries, Fishery Data Series Report. *In prep.*
- Ericksen R. P. 2003. Smolt production and harvest of coho salmon from the Chilkat River, 2001–2002. Alaska Department of Fish and Game, Fishery Data Series, No. 03-28, Anchorage.
- Kelley, M. S. and R. L. Bachman. 1999. Chilkoot River weir results, 1998. Alaska Department of Fish and Game, Commercial Fisheries Division, Regional Information Report 1J99-25, Juneau.
- McPherson, S. A. 1990. An inseason management system for sockeye salmon returns to Lynn Canal, Southeast Alaska. M. S. Thesis, University of Alaska Fairbanks.
- McPherson, S., D. Bernard, J. H. Clark, K. Pahlke, E. Jones, J. Der Hovanisian, J. Weller, and R. Ericksen, 2003. Stock status and escapement goals for Chinook salmon stocks in Southeast Alaska. Alaska Department of Fish and Game, Special Publication No. 03-01, Anchorage.
- Shaul, L., S. McPherson, E. Jones, and K. Crabtree. 2003. Stock status and escapement goals for coho salmon stocks in Southeast Alaska. Alaska Department of Fish and Game, Special Publication No. 03-02, Anchorage.

Table 1.—Historical catches of king, sockeye, coho, pink, and chum salmon in the District 15 (Lynn Canal) drift gillnet fishery, 1976 to 1990.

Stat Week	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990
25	249		752	469	54	450	260		949	268	85			3,041	1,352
26	716	771	712	1,185	254	2,055	941	74	1,456	9,254	542	328	632	3,859	4,885
27	625	386	492	67	585	3,179	1,412	1,250	10,108	24,565	4,992	4,754	21,321	7,556	26,932
28	705	481	214	749	1,245	2,371	670	2,697	12,271	30,254	6,027	4,422	17,458	4,081	25,404
29	1,818	652	685	1,118	2,076	2,411	670	3,745	12,638	5,300	4,877	4,645	12,112	3,360	3,854
30	514	1,556	2,156	1,025	6,111	1,937	481	7,152	15,110	4,504	1,654	7,380	2,693	2,777	10,523
31	546	1,731	2,834	2,393	9,563	812	903	4,385	7,035	3,661	810	5,169	5,990	4,139	11,332
32	433	567	2,972	5,507	37,485	3,330	1,714	3,340	11,672	3,703	5,095	3,751	11,634	5,366	8,851
33	1,402	614	4,983	6,706	28,959	645	3,379	9,211	11,113	5,673	9,220	2,860	11,234	5,144	10,395
34	3,808	3,322	17,352	14,107	32,101	4,584	4,704	10,962	12,603	14,494	20,521	4,558	8,188	8,268	32
35	22,929	19,565	35,463	50,777	21,229	22,584	14,169	27,782	28,560	21,210	13,916	7,959	23,717	7,392	28,467
36	51,189	30,223	36,564	69,131	29,191	33,194	18,203	45,030	35,475	44,002	39,362	15,244	52,371	24,783	29,349
37	61,937	65,365	13,249	60,854		19,622	25,287	38,705	123,796	95,439	48,543	83,477	60,496	24,284	39,808
38	42,256	48,301		28,744		10,777	47,595	33,292	141,629	108,947	108,958	78,995	54,605	19,581	9,358
39	58,409	28,100				9,424	54,445	56,204	152,273	140,348	60,501	119,300	68,031		
40	57,413						67,808	67,714	32,426	113,791	46,823	30,307	18,853		
41	56,859						28,228	22,986	27,736	63,172	9,456	10,144	8,248		
42	11,846						30,865	6,616	5,388	10,225		9,645			
43	1,372						4,851								

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Table 1.-(continued)

Total Harvest	375,026	201,634	118,428	242,832	168,853	117,375	306,585	341,145	642,238	698,810	381,382	392,938	377,583	123,631	210,542
Summer Harvest	5,173	5,577	7,845	7,006	19,888	13,215	5,337	19,303	59,567	77,806	18,987	26,698	60,206	28,813	84,282
Fall Harvest	369,853	196,057	110,583	235,826	148,965	104,160	301,248	321,842	582,671	621,004	362,395	366,240	317,377	94,818	126,260
Stat Week	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	Average 1976–02	
25	9,895				13,555	18,926	599				34,484	31,446	20,409	6,873	
26	27,183	3,342	4,320	26,201	52,576	50,870	6,509	7,510	3,187	11,102	66,658	77,966	30,617	13,522	
27	19,791	7,680	8,124	82,162	100,676	100,040	14,972	6,100	11,863	72,832	103,949	142,910	112,133	28,864	
28	14,692	18,331	57,376	155,072	163,009	87,218	88,475	42,537	50,962	207,799	72,965	217,716	67,710	47,600	
29	15,321	32,598	72,166	106,299	114,717	52,929	134,784	36,530	99,072	224,103	54,185	98,306	60,464	40,777	
30	8,064	42,825	60,403	113,866	40,516	19,751	136,555	33,399	81,016	140,878	18,474	42,759	34,746	29,781	
31	5,681	27,729	26,895	45,780	8,230	10,287	49,805	10,439	44,225	28,828	8,272	14,640	22,741	12,671	
32	6,211	16,012	12,089	23,441	2,371	11,232	6,215	3,221	6,705	8,526	8,370	9,712	6,170	8,131	
33	4,627	13,714	4,801	16,029	3,517	7,857	2,920	1,694	3,645	3,982	7,626	3,096	2,937	6,854	
34	9,375	8,742	4,224	9,466	12,052	11,167	4,420	1,689	4,200	6,079	3,470	3,796	2,506	8,825	
35	11,830	28,300	8,195	10,573	16,961	12,373	6,282	2,487	5,541	7,364	10,919	2,949	5,483	17,389	
36	11,135	20,083	9,361	10,640	9,954	10,114	6,035	2,423	7,632	13,960	20,056	5,480	7,309	25,192	
37	26,285	10,592	10,269	24,939	14,038	10,446	4,043	4,443	9,916	10,256	22,829	8,858	11,692	35,299	
38	18,938	5,678	6,858	24,638	10,256	8,860		5,195	10,542	8,551	5,698	5,326	4,191	35,149	
39	10,396	8,014	10,318	17,458	5,940	3,477		3,002	3,311	9,503	4,575	661	4,141	39,223	
40	10,052	1,607	9,387	15,169					5,737	4,488	903	64	1,205	30,159	
41	713		1,780	3,716					3,204		92		38	18,180	
42									136				0	10,674	
43														3,112	
Total Harvest	210,189	245,247	306,566	685,449	568,368	415,547	461,614	160,669	350,894	758,251	443,525	665,685	394,492	369,297	
Summer Harvest	100,627	132,505	229,284	529,380	493,279	340,021	431,699	136,515	290,325	685,542	358,987	625,743	348,820	177,541	
Fall Harvest	109,562	112,742	77,282	156,069	75,089	75,526	29,915	24,154	60,569	72,709	84,538	39,942	45,672	191,755	

Table 2.—Biological escapement goals for Lynn Canal salmon stocks by species and location.

Species	Stock	Escapement Goal Type	Point Goal	Lower Escapement Goal	Upper Escapement Goal
Sockeye ^a	Chilkoot Lake Early	Weir Count	22,000	16,500	31,500
Sockeye ^a	Chilkoot Lake Late	Weir Count	40,000	34,000	60,000
Sockeye ^a	Chilkoot Lake Total	Weir Count	62,000	50,500	91,500
Sockeye ^a	Chilkat Lake Early	M-R Estimate	17,500	14,000	28,000
Sockeye ^a	Chilkat Lake Late	M-R Estimate	47,500	38,000	78,000
Sockeye ^a	Chilkat Lake Total	M-R Estimate	65,000	52,000	106,000
Coho ^b	Berners River	Peak Foot Count	6,300	4,000	9,200
King ^c	Chilkat River Combined	M-R Estimate	2,200	1,750	3,500

^a McPherson 1990.^b Shaul, McPherson, Jones and Crabtree, 2003.^c McPherson et al. 2003.

Table 3.—Yearly preseason smolt based forecast compared to the estimated total return of adult Chilkat Lake sockeye salmon, 1992, 1997–2004.

Year	Pre-season Forecast	Estimated Total Return	Difference Forecast vs. TR	Percent Difference
1992	218,000	209,627	8,373	4%
1993 ^a	N/A	310,447	N/A	N/A
1994 ^a	N/A	275,752	N/A	N/A
1995 ^a	N/A	247,937	N/A	N/A
1996 ^a	N/A	359,232	N/A	N/A
1997	266,974	308,859	-41,885	-16%
1998	262,123	430,106	-167,983	-64%
1999	295,520	386,071	-90,551	-35%
2000	177,093	210,190	-33,097	-19%
2001	151,307	190,635	-39,328	-26%
2002	175,546	181,717	-6,171	-4%
2003	156,056	167,019	-10,962	-9%
2004	115,101	178,177	-63,076	-65%
2005	83,839	N/A	N/A	N/A
92, 97–2004 Avg.	201,969	265,828	-49,409	-26%

^a No forecast due to incomplete smolt data.

Note: Escapement for years 1994–2004 based on mark-recapture methods.

Table 4.—Annual total return of Chilkat Lake sockeye salmon by week, 1976– 2004.

Statistical	Week	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990
	23														62	
	24	1		22	6										689	202
	25	384	214	4,861	1,556	675	1,542	469		2,550	408	88			13,398	2,358
	26	5,038	5,346	2,645	3,941	1,053	1,960	2,170	1,452	6,348	1,732	361	1,968	2,438	19,180	6,021
	27	5,568	9,661	8,622	6,955	1,152	1,826	4,061	3,116	11,132	1,731	1,304	5,307	5,497	18,284	7,966
	28	6,583	2,350	3,799	7,017	3,560	1,635	3,524	16,747	5,413	6,456	1,227	3,713	5,416	13,456	8,758
	29	2,037	2,412	13,648	14,088	4,355	3,053	3,087	19,741	12,331	5,459	1,997	12,411	7,607	20,959	13,254
	30	3,795	1,586	4,528	17,288	6,685	6,171	3,618	16,317	14,147	3,471	2,229	7,580	4,127	25,615	12,637
	31	4,275	1,841	22,108	19,520	3,401	3,123	13,135	18,993	9,295	9,962	2,266	6,073	10,476	15,994	11,372
	32	9,730	4,502	18,979	30,268	5,550	5,934	30,622	24,469	12,203	11,705	10,775	15,401	8,462	35,253	26,950
	33	14,422	5,350	23,568	21,765	10,337	1,746	30,708	23,031	21,367	11,493	30,806	11,230	13,569	18,503	35,594
	34	21,306	6,185	12,968	23,389	12,510	3,430	18,548	17,307	7,807	27,805	45,640	10,041	7,337	21,241	2,948
	35	12,280	7,392	4,384	17,551	13,799	19,487	21,353	22,356	21,427	39,750	15,353	12,649	7,008	21,047	36,947
	36	7,296	20,193	6,903	5,110	11,032	8,097	12,250	25,274	22,913	20,105	45,368	4,112	7,106	12,212	23,929
	37	17,740	8,982	6,362	20,149	29,820	19,652	8,004	15,674	22,509	11,180	13,083	1,852	11,491	16,250	4,020
	38–42	18,602	6,419	23,689	7,980	22,099	54,893	55,708	53,618	44,058	41,970	21,811	26,325	13,532	47,778	14,331
Yearly Total		129,057	82,433	157,086	196,583	126,028	132,549	207,257	258,095	213,500	193,227	192,308	118,662	104,066	299,921	207,287
Early Stock Catch		37,411	27,912	79,212	100,639	26,431	25,244	60,686	100,835	73,419	40,924	20,247	52,453	44,023	162,890	89,518
Late Stock Catch		91,646	54,521	77,874	95,944	99,597	107,305	146,571	157,260	140,081	152,303	172,061	66,209	60,043	137,031	117,769

-Continued-

Table 4.-(continued)

Statistical															1976–04	
Week	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	Mean	
23	1														32	
24	44	10			57		476	592	258	53	105	716	144	87	216	
25	1,516	53	2,358		4,516	987	5,003	4,308	1,127	3,861	2,046	6,820	1,875	1,237	2,568	
26	2,727	3,452	2,886	6,261	7,021	5,954	6,569	14,634	10,292	18,395	8,353	8,472	2,920	3,810	5,634	
27	3,157	6,280	6,120	10,224	10,474	11,981	15,157	29,804	20,235	21,008	10,802	10,618	3,940	9,299	9,010	
28	3,902	5,310	9,787	15,900	14,557	34,411	8,338	31,533	46,640	18,335	14,305	10,805	3,244	16,586	11,149	
29	2,892	12,216	9,417	16,880	11,359	30,905	8,469	36,090	35,884	16,039	23,472	12,702	4,519	16,485	12,889	
30	4,928	10,681	10,541	14,476	20,856	31,177	15,775	31,506	39,289	15,403	26,331	14,716	5,321	14,643	13,291	
31	6,294	7,825	9,317	17,780	19,782	34,786	23,640	32,112	28,573	16,273	19,647	16,638	6,598	13,620	13,956	
32	10,202	15,267	13,613	21,151	22,516	58,568	31,728	41,282	36,690	21,336	27,652	24,022	17,393	20,781	21,138	
33	7,870	25,623	26,504	46,225	20,818	39,784	17,349	36,814	33,663	18,377	16,358	17,255	26,531	20,962	21,642	
34	14,332	15,416	33,161	29,319	44,587	37,510	20,648	31,761	35,772	18,609	11,091	14,809	24,585	18,984	20,312	
35	19,423	36,915	38,108	35,280	28,202	31,720	26,064	31,529	35,087	11,137	10,136	14,424	25,053	15,236	21,762	
36	11,436	22,689	29,950	32,105	17,769	20,683	22,670	19,649	19,154	12,845	10,546	16,317	23,323	15,124	17,454	
37	7,726	8,234	5,901	26,137	23,374	18,089	29,896	27,720	15,695	6,044	3,396	8,163	11,063	3,356	13,847	
38–42	16,245	39,656	112,784	4,012	2,048	2,676	77,078	46,224	42,015	12,474	6,395	5,239	10,510	7,968	28,901	
Yearly Total	112,695	209,627	310,447	275,752	247,937	359,232	308,859	430,106	398,822	210,190	190,635	181,717	167,019	178,177	213,768	
Early Stock Catch	35,663	61,094	64,039	102,673	111,138	208,770	115,155	221,860	218,988	130,703	132,713	105,509	45,955	96,548	89,402	
Late Stock Catch	77,032	148,533	246,408	173,079	136,798	150,462	193,705	193,698	181,387	79,487	57,921	76,208	121,064	81,629	123,918	

Table 5.—Annual escapements of Chilkat Lake sockeye salmon by week, 1976–2004.

Statistical															
Week	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990
23														62	
24	1		22	6										689	202
25	0	214	476	44	72	3			302					5,802	639
26	433	305	1,302	698	887	0	31	368	1,441	7	4	88	59	10,690	3,615
27	944	572	8,622	6,930	1,152	5	532	1,248	5,436	98	2	1,777	2,015	7,845	1,660
28	2,437	773	2,751	2,081	3,560	141	605	11,144	623	1,317	602	2,197	496	2,295	4,353
29	1,140	207	11,816	8,576	4,355	549	461	15,284	3,280	1,141	139	5,601	9	8,126	9,566
30	2,055	542	1,310	4,068	4,575	1,071	2,515	8,935	6,011	334	20	2,542	722	15,810	2,380
31	2,816	711	1,814	1,413	2,100	1,002	1,743	10,750	929	812	24	1	1,969	3,161	1,449
32	310	1,184	40	2,056	2,100	266	3,496	6,865	141	2,029	1	123	1,965	4,340	1,925
33	2,740	725	1,078	5,895	2,100	729	509	4,254	2,971	157	3	1,776	200	11	380
34	9,810	968	1,634	7,288	5,666	1,450	4,073	5,589	1,417	1,555	138	1,875	566	3,207	2,948
35	4,283	1,269	1,246	11,212	6,910	767	5,151	1,433	14,899	4,434	736	6,193	280	7,582	7,167
36	6,799	18,711	5,670	3,639	10,351	4,967	1,575	5,475	18,015	3,271	1,006	1,618	469	8,379	9,647
37	17,483	8,664	6,106	19,464	29,613	18,652	6,091	10,526	18,512	3,372	5,364	27	7,973	15,019	259
38–42	18,478	6,199	23,641	7,219	21,906	54,487	53,439	52,336	41,292	39,197	15,908	24,775	10,870	47,457	14,041
Yearly Total	69,729	41,044	67,528	80,589	95,347	84,089	80,221	134,207	115,269	57,724	23,947	48,593	27,593	140,475	60,231
Early Stock	17,582	9,437	17,924	30,433	10,253	10,617	9,640	47,885	28,193	7,449	2,536	13,345	7,512	54,090	25,792
Late Stock	52,147	31,607	49,604	50,156	85,094	73,472	70,581	86,322	87,076	50,275	21,411	35,248	20,081	86,385	34,439

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Table 5.-(continued)

Statistical	1976–04														
Week	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	Mean
23	1														32
24	44	10			57		476	395	270	53	105	716	232	87	210
25	305	53	75		2,232		1,857	2,562	1,140	3,861	392	4,920	2,318	1,237	1,357
26	901	1,016	1,745	1,510	5,323	2,720	3,618	6,382	5,737	14,933	4,580	6,464	3,562	2,625	2,795
27	1,600	1,653	3,557	3,456	8,471	11,051	11,759	12,307	12,659	13,238	5,014	7,027	4,688	6,190	4,880
28	1,971	1,762	4,240	8,223	9,674	32,814	5,951	10,495	26,856	10,034	6,595	7,533	3,123	8,652	5,976
29	503	6,529	3,552	5,125	9,387	28,393	5,713	12,343	16,442	9,594	12,139	7,084	5,019	8,505	6,916
30	2,812	5,034	7,615	8,025	18,775	28,308	13,187	9,500	20,819	8,399	19,314	9,486	4,220	7,985	7,461
31	2,234	2,263	5,336	8,184	17,172	26,778	16,044	10,900	14,853	7,176	12,945	12,310	4,921	8,641	6,222
32	3,724	3,579	6,490	9,375	17,973	42,335	22,138	15,897	17,906	8,886	20,775	15,830	18,107	16,902	8,509
33	1,821	1,197	14,537	34,085	15,054	22,358	11,283	17,350	21,197	9,347	11,512	14,877	27,532	15,287	8,309
34	4,295	5,768	6,643	17,559	25,643	17,767	9,617	16,221	20,962	11,167	10,196	10,830	26,796	15,556	8,524
35	10,732	10,357	23,593	16,367	21,007	21,848	14,521	19,738	20,035	7,145	9,084	10,606	28,136	11,556	10,286
36	5,380	13,172	19,677	19,346	13,394	13,942	18,044	12,723	9,563	9,647	9,641	14,001	28,322	13,671	10,349
37	2,260	6,014	1,251	18,274	20,377	14,112	27,518	19,149	10,180	5,595	3,139	7,576	14,925	2,729	11,042
38–42	14,306	39,333	111,419	4,012	0	425	77,078	45,152	37,754	12,246	6,257	5,165	16,659	7,415	27,878
Yearly Total	52,889	97,740	209,730	153,540	184,541	262,852	238,803	211,114	236,374	131,322	131,687	134,424	188,561	127,040	120,248
Early Stock	15,916	23,096	47,147	43,897	89,065	172,400	80,744	80,781	116,682	76,175	81,859	71,370	46,190	60,826	44,787
Late Stock	36,973	74,644	162,583	109,643	95,476	90,451	158,059	130,333	119,692	55,147	49,828	63,055	142,371	66,214	75,461

Note: From 1994 through 2004, estimates of escapement are determined from mark-recapture methods; weekly escapement numbers are derived from fish wheel CPUE and stock composition data.

Table 6.—Chilkat Lake sockeye salmon smolt age, weight, and length compositions (wild and enhanced components), 1989–1990 and 1994–2004.

Year	Total Outmigration	Fry Stocked	Total Wild	Total Enhanced	% Enhanced	Enhanced Survival %	Wild age-1.0	Enhanced age-1.0	Wild age-2.0	Enhanced age-2.0	Wild age-3.0	Enhanced age-3.0
1989	2,000,000		2,000,000				1,520,000		480,000			
1990	2,600,000		2,600,000				702,000		1,898,000			
1994	2,367,891	4,400,000	2,367,891				1,207,624		1,160,267			
1995	1,890,876	2,393,558	1,210,977	686,436	36.0%	23.1%	403,217	686,436	801,223	n/a	6,537	
1996	2,869,690	2,691,311	2,269,741	599,419	21.0%	27.7%	939,393	269,365	1,325,183	330,054	5,165	
1997	1,514,194	2,806,858	1,039,634	476,225	31.0%	4.9%	113,201	98,786	918,711	377,439	7,722	
1998	1,386,118	0	1,115,700	270,418	19.5%	23.8%	666,224	220,892	340,569	33,683	108,907	15,843
1999	1,809,273	0	1,362,342	446,931	24.7%		620,377	n/a	716,718	446,931	25,247	n/a
2000	1,629,883	0	1,629,883	n/a	n/a		115,214	n/a	1,509,020	n/a	5,649	n/a
2001	1,398,802	2,698,874	1,398,802	n/a	n/a		657,269	n/a	694,397	n/a	47,136	n/a
2002	434,411	0	432,608	1,803	0.4%		114,619	1,803	316,686	n/a	869	n/a
2003	1,458,025	0	1,401,462	56,563	3.9%		840,998	n/a	549,390	56,563	11,075	n/a
2004	1,457,990	0	1,457,990	n/a	n/a		831,210	n/a	624,685	n/a	2,096	n/a
Avg	1,755,166	1,362,782	1,569,087	413,539	19.5%	19.9%	671,642	255,456	871,911	248,934	22,040	15,843

Table 7.—Percent age, average length and average weight of Chilkat Lake sockeye salmon smolt, 1989–1990 and 1994–2004.

Year	Percent Age			Average Length (mm)			Average Weight (g)		
	age-1.0	age-2.0	age-3.0	age-1.0	age-2.0	age-3.0	age-1.0	age-2.0	age-3.0
1989	76.0%	24.0%		100.2	121.0		8.9	14.6	
1990	27.0%	73.0%		103.9	118.9		10.0	14.8	
1994	51.0%	49.0%		102.3	119.5		9.9	14.8	
1995	62.0%	37.0%	4.0%	92.5	115.4	147.4	7.1	13.2	27.2
1996	42.0%	58.0%	2.0%	86.3	107.2	185.0	5.7	10.3	56.0
1997	13.0%	86.0%	1.0%	95.2	101.2	154.5	7.0	8.8	34.4
1998	64.0%	27.0%	9.0%	92.7	109.4	138.3	7.3	11.2	22.7
1999	34.0%	64.0%	2.0%	88.1	107.6	155.8	5.3	9.5	37.7
2000	7.1%	92.6%	0.3%	93.8	104.8	120.4	7.1	9.4	14.3
2001	47.0%	49.6%	3.4%	92.5	113.4	131.5	6.8	11.8	19.0
2002	26.8%	72.9%	0.2%	85.5	92.7	175.0	5.2	6.3	38.7
2003	75.3%	24.1%	0.6%	88.9	111.4	136.9	5.9	11.4	21.1
2004	57.0%	42.8%	0.1%	87.2	93.8	115.0	5.6	6.8	12.5
Avg	44.8%	53.9%	2.3%	93.0	108.9	146.0	7.1	11.0	28.4

Table 8.—Weekly and annual escapement of Chilkat River mainstem sockeye salmon, 1994–2004.

Statistical Week	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	94–04 Mean
23												
24		27		69	65		53	51	102	48	64	61
25		1,410		270	1,153	39	309	55	1,838	1,019	227	725
26	137	2,867	585	162	3,820	431	2,222	1,294	5,158	4,162	1,313	1,853
27	1,061	3,700	4,428	1,189	2,842	1,565	5,817	2,254	7,349	7,761	3,380	3,356
28	3,427	3,529	12,508	1,059	2,893	5,571	8,440	2,261	6,457	5,623	5,166	5,127
29	1,434	3,116	10,239	1,433	3,312	2,671	13,472	3,145	5,313	4,448	5,531	4,904
30	2,242	4,283	11,416	3,277	3,335	5,001	7,805	6,645	4,159	2,757	2,992	5,351
31	2,720	3,140	6,615	2,845	4,271	2,607	8,025	2,627	5,123	2,668	4,083	4,219
32	3,170	1,588	5,207	2,222	1,252	2,891	4,944	2,330	2,248	3,706	5,268	2,872
33	8,431	1,229	1,036	613	1,201	1,724	2,318	964	1,264	2,011	3,085	2,087
34	1,882	449	661	371	243	1,083	657	209	1,050	1,546	1,989	734
35	886	740	398	430	481	257	139	34	456	1,100	1,493	425
36	691		217	140		381	65	29	505	256	710	290
37	105		59	377	90			26			82	131
38				180		133					41	157
Yearly Total	26,186	26,080	53,369	14,638	24,959	24,355	54,266	21,925	41,022	37,105	35,425	32,666
Weekly Mean	2,182	2,173	4,447	976	1,920	1,873	4,174	1,566	3,156	2,854	2,716	2,549

Note: Estimates based on mark-recapture methods. Weekly estimates are calculated from stock proportions of sockeye salmon captured in the lower Chilkat River fish wheels.

Table 9.—Annual total return of Chilkoot Lake sockeye salmon by week, 1976–2004.

Statistical																
Week	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	
23	124	14	844	3	0	0	0	0	333	8	25	11	0	571	328	
24	623	9,572	1,957	8,738	0	25	252	467	3,349	6	101	176	95	4,266	2,060	
25	483	35,751	3,796	4,802	1,312	3,394	14,437	2,764	13,273	630	414	198	1,082	26,973	5,062	
26	6,470	33,174	1,007	2,188	1,479	4,255	13,272	10,175	14,204	6,975	647	21,421	6,097	15,106	14,736	
27	3,192	20,985	6,677	2,832	1,824	2,309	6,972	6,636	12,092	3,372	2,992	23,211	28,807	13,475	9,912	
28	3,350	20,830	2,404	12,032	2,241	3,346	7,306	7,186	18,878	6,926	4,685	8,025	20,534	28,206	9,938	
29	4,839	18,379	4,984	1,097	5,894	16,810	10,680	7,929	28,068	2,856	4,025	51,328	29,550	45,814	13,233	
30	10,097	10,552	9,173	8,064	10,184	24,110	28,921	41,318	61,590	8,196	7,809	54,190	25,275	37,381	46,320	
31	30,483	20,599	6,348	29,879	10,225	20,685	56,819	61,978	56,888	37,270	13,506	51,040	54,337	65,123	31,621	
32	36,740	21,295	6,128	56,146	27,834	12,128	41,839	45,339	46,017	33,668	29,464	95,943	46,488	48,270	36,726	
33	14,251	12,832	3,449	21,877	28,288	17,209	29,943	44,734	26,207	32,265	33,637	47,338	49,678	35,796	32,794	
34	7,586	4,822	2,207	10,019	14,261	11,611	21,130	25,253	27,087	55,628	49,703	49,361	25,032	10,998	13,553	
35	13,354	883	359	5,801	11,971	5,567	10,965	31,197	13,338	17,265	27,309	19,521	28,384	8,312	18,492	
36	857	527	136	1,379	1,205	4,751	2,272	26,034	7,454	12,367	15,178	6,455	13,495	4,337	12,215	
37	537	129	123	634	518	915	1,865	7,794	3,258	2,817	7,277	1,466	4,577	1,245	4,568	
38–42	763	20	126	319	122	49	892	3,008	173	1,102	1,682	496	1,811	890	630	
Total	133,749	210,364	49,718	165,810	117,358	127,164	247,565	321,812	332,209	221,351	198,454	430,180	335,242	346,763	252,188	

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Table 9.-(continued)

Statistical	1976-04														
Week	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	Mean
23	1	31	65	309	185	0	873	0	1	0	89	102	15	41	137
24	471	4,744	249	2,687	295	129	2,317	117	59	174	265	2,005	342	233	1,578
25	8,300	8,775	2,592	1,117	1,747	1,862	13,611	327	143	413	3,928	3,427	709	1,640	5,619
26	7,186	9,426	13,123	8,630	1,507	5,389	8,785	824	859	2,637	9,025	4,118	1,629	996	7,770
27	5,030	21,317	11,730	8,852	1,332	3,574	5,899	969	2,181	2,800	9,965	4,105	4,090	3,285	7,945
28	9,064	10,118	12,017	7,004	2,164	5,987	4,825	909	1,270	4,696	8,109	7,457	5,789	8,910	8,421
29	13,531	15,498	9,274	3,760	1,069	3,060	4,762	1,241	1,326	6,157	20,119	9,984	7,982	13,370	12,297
30	30,131	16,556	8,745	3,351	1,754	12,819	7,866	1,864	2,184	7,546	21,434	13,098	12,623	19,284	18,705
31	53,137	22,984	10,374	7,558	1,944	12,518	8,212	2,067	3,048	8,566	31,855	11,090	28,349	20,488	26,517
32	57,302	25,652	9,309	3,951	561	9,726	3,775	2,091	2,633	7,696	24,341	9,722	24,257	23,907	27,205
33	44,373	30,146	7,798	4,431	795	5,213	2,786	1,469	1,329	7,272	8,378	4,048	11,720	21,505	20,054
34	41,469	15,382	7,946	4,518	633	3,180	4,405	1,293	1,378	3,033	2,523	5,341	2,888	6,466	14,783
35	24,411	16,460	4,436	3,640	502	3,363	2,997	818	3,058	3,201	2,204	3,448	4,086	9,716	10,174
36	11,310	7,161	3,030	2,182	562	1,226	1,588	280	2,517	3,297	1,267	3,850	1,630	8,071	5,401
37	6,968	2,703	2,010	721	76	1,056	468	237	1,225	602	271	839	657	4,000	2,054
38-42	1,995	837	553	119	29	499	0	34	331	139	12	4	13	224	582
Total	314,679	207,790	103,251	62,830	15,155	69,600	73,167	14,541	23,542	58,229	143,785	82,636	106,778	142,133	169,243

Table 10.—Annual weir counts of Chilkoot Lake sockeye salmon by week, 1976– 2004.

Statistical.																
Week	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	
23	124	14	844	3					333	8	25	11		571	328	
24	623	9,572	1,957	8,738		25	252	467	3,349	6	101	176	95	4,266	2,060	
25	241	35,751	1,368	2,730	391	1,108	12,220	2,764	11,100	104	163	198	1,082	21,300	2,778	
26	3,579	11,150	274	469	1,157	2,177	9,440	8,860	7,444	4,681	224	16,583	1,506	2,466	12,190	
27	735	3,361	6,677	407	1,824	559	2,623	4,062	4,406	783	857	6,879	22,846	1,009	1,893	
28	397	6,970	1,311	309	2,241	606	1,981	3,304	9,993	463	3,650	3,365	5,872	913	1,980	
29	1,752	1,844	2,526	95	5,894	7,346	5,095	4,090	6,738	810	2,328	7,000	4,389	2,122	0	
30	4,091	1,854	7,650	2,871	9,239	15,951	17,574	21,548	11,917	3,601	5,467	8,134	2,554	2,942	4,989	
31	28,061	9,016	3,465	22,765	8,294	9,006	20,806	12,747	9,610	19,778	11,438	8,998	5,416	3,614	1,853	
32	13,587	9,561	5,157	31,000	20,860	9,963	13,358	4,507	8,020	9,832	21,563	9,944	5,824	4,313	1,995	
33	11,827	6,059	2,316	16,091	21,333	15,631	8,287	3,614	5,522	12,501	12,276	5,899	5,683	2,157	4,255	
34	5,205	1,019	1,469	5,140	12,968	10,659	4,938	2,720	11,185	7,013	11,839	16,978	10,851	2,793	13,553	
35	346	372	155	3,880	10,669	5,028	2,655	3,016	3,435	4,432	6,348	6,018	6,650	3,067	13,734	
36	49	403	56	933	1,077	4,519	1,518	4,366	4,474	2,817	5,416	3,918	4,544	1,840	9,147	
37	118	103	106	427	479	794	1,404	2,604	2,891	1,546	5,071	738	2,646	876	2,128	
38	410	2	83	8	45		822	1,070		480	762	217	759	232	365	
39	142		12	70	36			502		145	409	112	381	216	5	
40–42	10		28	10	5			102		26	87	17	176	203	71	
Yearly Total	71,297	97,051	35,454	95,946	96,512	83,372	102,973	80,343	100,417	69,026	88,024	95,185	81,274	54,900	73,324	
Early Stock Esc.	6,737	69,268	10,349	13,026	14,196	8,144	29,127	21,545	37,489	9,424	17,210	29,141	30,765	29,561	21,229	
Late Stock Esc.	64,560	27,783	25,105	82,920	82,316	75,228	73,846	58,798	62,928	59,602	70,814	66,044	50,509	25,339	54,870	

-Continued-

Table 10.-(continued)

Stat.	1976-04														
Week	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	Average
23	1	31	65	309	185		873		1		89	102	15	41	189
24	471	4,744	249	2687	295	129	2317	117	59	174	265	2,005	342	233	1,635
25	5,599	8,775	2,592	1,117	243	459	6,677	327	143	413	2,811	2,451	448	1,640	4,379
26	3,083	2,310	5,431	4,752	342	1,418	3,433	664	521	2,494	4,171	3,195	1,165		4,114
27	2,097	8,450	2,306	4,170	317	1,956	1,407	857	1,980	2,208	3,125	1,869	2,805	1,178	3,229
28	2,528	975	5,883	4,241	298	4,393	3,143	676	884	2,558	3,083	4,138	4,074	3,288	2,880
29	5,436	1,222	3,488	1,141	325	2,482	2,440	791	668	3,385	7,953	6,193	7,207	5,343	3,452
30	21,990	2,902	5,021	2,123	1,517	12,040	4,805	1,534	1,734	5,154	11,168	10,433	11,437	10,724	7,688
31	17,870	9,488	5,864	5,158	1,731	9,163	3,919	1,687	2,706	4,756	21,480	7,599	21,041	12,655	10,344
32	7,317	7,173	6,807	1,342	417	6,743	3,524	1,924	1,864	6,359	11,231	4,775	14,103	8,750	8,683
33	8,229	10,572	4,298	2,140	545	3,867	2,606	1,352	1,041	6,344	5,094	2,994	5,677	9,457	6,816
34	4,115	2,530	4,857	3,220	237	2,655	4,246	1,217	1,108	2,699	2,320	4,764	1,251	3,583	5,418
35	5,077	3,531	2,222	2,736	270	2,919	2,880	678	3,058	3,067	2,064	3,322	3,564	7,307	3,879
36	3,988	2,549	899	1,656	472	1,081	1,540	261	2,262	3,246	1,182	3,716	902	7,333	2,626
37	1,879	1,200	1,427	624	15	969	444	216	990	559	247	805	428	3,908	1,229
38	416	346	418			465		34	265	139			0	156	341
39	294	273													200
40-42	248														82
Yearly Total	90,638	67,071	51,827	37,416	7,209	50,739	44,254	12,335	19,284	43,555	76,283	58,361	74,459	75,596	66,694
Early Stock Esc.	16,497	25,285	16,526	17,276	1,680	8,355	17,850	2,641	3,588	7,847	13,544	16,733	8,834	6,339	17,593
Late Stock Esc.	74,141	41,786	35,301	20,140	5,529	42,384	26,404	9,694	15,696	35,708	62,739	41,628	65,610	69,216	49,194

Table 11.—Selected data for Chilkoot Lake sockeye salmon smolt for years 1996–2003, annual autumn hydroacoustic, total adult return, and average annual zooplankton densities for years 1987–2004.

Year	Sample Size	<u>Average Weight</u>		<u>Average Length</u>		%	
		Age-1.X	Age-2.X	Age-1.X	Age-2.X	Age 1.0	Age 2.0
1996	25	2.7	2.7	66.8	68.5	91	9
1997	5	3	N/A	68	N.A	100	N/A
1998	30	2.12	3.5	69.75	73.8	84	16
1999	39	1.3	1.1	51.08	47.5	100	0
2000	39	3.18	2.77	70	68.78	72	28
2001	1,161	3.19	5.46	70.1	83.22	66.5	33.5
2002	1,341	2.8	3.17	59.5	71.83	79.1	20.9
2003	1,439	1.8	2.42	61.2	67.12	29.46	71.72
2004	No Samples						
Average	509.88	2.39	3.02	64.55	68.68	77.76	25.59

Year	Survey Date	Estimated Juveniles	Total Return	Average zooplankton density (no./m2)	Average zooplankton biomass (mg/m2)
1987	30-Oct	1,344,951	430,180	172,295	207
1988	2-Oct	3,066,118	335,242	131,446	147.5
1989	16-Oct	874,794	346,763	46,872	135.5
1990	25-Oct	607,892	252,188	53,987	145.5
1991	22-Oct	475,404	314,679	9,751	25
1992	N/A	N/A	207,790	N/A	N/A
1993	N/A	N/A	103,251	N/A	N/A
1994	N/A	N/A	62,830	N/A	N/A
1995	6-Nov	260,797	15,155	26,579	84.75
1996	24-Oct	418,152	69,600	44,081	143.75
1997	22-Oct	755,060	73,167	15,063	46
1998	6-Oct	1,446,736	14,552	46,678	91.5
1999	14-Oct	351,096	23,542	14,329	46.25
2000	13-Oct	1,190,717	58,229	62,156	247
2001	17-Oct	696,000	143,785	88,791	275
2002	10-Oct	1,196,701	82,636	46,434	194
2003	10-Oct	1,384,754	106,778	46,788	155
2004	5-Nov	996,046	142,133	N/A	N/A
Average		1,004,348	154,583	57,518	139

Table 12.—Annual harvests of Chilkat River mainstem and Berners Bay rivers, and other non-Chilkat or Chilkoot Lake, sockeye salmon by week, 1976– 2004.

Statistical	Week	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990
	25	60		548	504	381	143	44		355	134	16			3,214	1,823
	26	694	2,653	1,759	1,328	56	101	210	49	514	1,688	599	734	968	3,381	1,783
	27	963	1,330	207	0	725	145	145	255	491	5,173	1,233	6,958	6,611	2,440	6,998
	28	1,194	332	386	494	158	150	155	294	383	6,691	4,365	983	4,889	1,742	2,221
	29	375	848	316	501	73	181	175	105	309	273	738	872	5,100	2,030	1,054
	30	735	116	577	1,414	0	116	172	268	561	522	897	263	1,057	1,725	4,601
	31	204	0	486	1,942	76	154	549	1,204	706	746	597	330	1,316	2,922	4,669
	32	227	0	0	0	75	67	128	740	536	448	903	350	442	1,956	4,251
	33	151	0	269	165	8	0	329	663	244	377	948	111	348	366	3,088
	34	132	98	74	492	3	14	0	256	73	68	825	121	101	494	0
	35	76	0	29	195	3	0	0	78	130	48	206	22	100	233	297
	36	8	0	6	35	0	0	0	42	48	0	87	0	122	98	216
	37	0	0	1	14	0	0	0	1	0	10	0	7	23	19	40
	38–42	23	0	0	32	0	0	1	0	0	0	0	0	33	5	3
Yearly Total		4,842	5,377	4,658	7,116	1,558	1,071	1,908	3,955	4,350	16,178	11,414	10,751	21,110	20,625	31,044
Weekly Mean		346	384	333	508	111	77	136	283	311	1,156	815	768	1,508	1,473	2,217

-Continued-

Table 12.-(continued)

Statistical															1976-04
Week	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	Mean
25	2,213				1,282	1,828	1,466				1,451	385	332		899
26	6,782	4,926	2,321	1,178	1,165	3,309	1,441	1,309	1,818	204	4,376	388	1,197	2,051	1,676
27	4,097	8,241	4,258	2,418	976	1,245	2,070	820	535	2,007	6,071	1,502	2,782	5,465	2,525
28	2,470	5,650	3,296	2,135	1,696	1,743	1,046	1,050	937	14,631	2,289	3,249	2,032	9,130	2,381
29	3,451	4,275	3,012	2,619	744	2,311	1,133	4,122	2,444	4,572	4,000	2,193	1,597	6,280	1,765
30	1,012	3,327	2,757	1,323	799	2,660	1,447	1,509	1,124	3,016	1,083	902	839	2,926	1,244
31	1,729	2,488	1,738	2,400	457	5,535	1,495	1,520	1,093	1,594	1,331	1,123	1,804	2,096	1,436
32	1,138	2,356	879	2,236	385	5,695	769	921	949	581	537	317	663	1,605	984
33	224	1,422	433	2,291	250	2,916	168	293	417	209	198	243	930	2,467	609
34	151	280	246	1,623	396	1,051	278	102	108	61	0	124	157	861	262
35	635	280	33	723	100	333	210	31	59	29	24	8	42	415	140
36	0	184	12	263	90	145	95	6	85	0	0	11	167	234	61
37	38	0	0	32	61	87	24	21	0	0	0	3	52	13	15
38-42	24	0	0	11	29	34	0	0	5	0	0	0	5	28	7
Yearly Total	23,964	33,429	18,985	19,252	8,430	28,893	11,642	11,704	9,575	26,903	21,361	10,446	12,599	33,571	14,369
Weekly Mean	1,712	2,388	1,460	1,481	602	2,064	832	900	737	2,069	1,526	746	900	2,582	1,049

Table 13.—Summary of releases of DIPAC chum salmon from Boat Harbor and Amalga Harbor, 1988–2004.

Brood Year	Release Year	Boat Harbor Releases	Boat Harbor Release Size (g)	Amalga Harbor Releases	Amalga Harbor Release Size (g)	Total Releases
1987	1988	5,170,000	ND			5,170,000
1988	1989	8,508,356	0.77			8,508,356
1989	1990	8,300,782	1.31			8,300,782
1990	1991	9,337,000	0.88	34,744,923	0.87	44,081,923
1991	1992	6,709,659	0.62	35,918,054	1.08	42,627,713
1992	1993	9,545,177	0.75	36,147,451	1.23	45,692,628
1993	1994	6,464,450	0.86	34,817,531	1.38	41,281,981
1994	1995	8,931,491	1.06	34,472,077	1.49	43,403,568
1995	1996	8,536,780	0.7	34,979,646	1.22	43,516,426
1996	1997	7,759,020	1.4	34,535,728	1.33	42,294,748
1997	1998	7,217,000	1.45	49,155,073	1.52	56,372,073
1998	1999	9,262,694	1.32	7,655,324	3.44 (L/L ^a)	60,045,708
				43,127,690	1.53 (Reg ^b)	
1999	2000	9,010,000	1.61	8,722,507	4.04 (L/L)	62,228,963
				44,496,456	1.55 (Reg)	
2000	2001	14,883,720	1.17	7,604,465	4.07 (L/L)	60,911,856
				38,423,671	1.41 (Reg)	
2001	2002	11,263,498	0.69	17,452,832	0.72	28,716,331
2002	2003	5,400,000	2.62 (L/L)	17,400,000	4.02 (L/L)	47,100,000
		6,800,000	1.78 (Reg)	17,500,000	2.39 (Reg)	
2003	2004	5,960,363	3.24 (L/L)	12,006,165	4.20 (L/L)	50,618,272
		8,615,776	1.54 (Reg)	24,035,968	2.29 (Reg)	
2004	2005 ^c	6,000,000	(L/L)	8,000,000	(L/L)	63,000,000
		9,000,000	(Reg)	40,000,000	(Reg)	

^a Late large release -Fry are held and fed for longer periods prior to release.

^b Regular release –Normal fry release timing

^c Planned releases.

Source: Douglas Island Pink and Chum Inc.

Table 14.—Summary of returns from DIPAC chum salmon enhancement projects in lower Lynn Canal, 1991–2004 with projections for 2005.

Year	% Estimated		Estimated		Boat Harbor			Amalga Harbor		
	Total	Hatchery	Hatchery	Commercial Cost	Total	Commercial Cost	Total	Commercial Cost	Total	Return
	Catch	Contribution	Contribution							
1991	111,465	50.1%	55,818	55,818	0	55,818	0			
1992	162,231	52.9%	85,811	85,811	0	85,811	0			
1993	246,174	78.2%	192,446	192,446	0	192,446	0			
1994	568,850	81.4%	463,106	135,640	0	135,640	327,466	124,994	452,460	
1995	499,167	91.2%	455,336	176,495	0	176,495	278,841	267,533	546,374	
1996	340,021	78.2%	265,957	62,477	10,872	73,349	203,480	968,448	1,171,928	
1997	431,699	87.8%	378,851	163,350	2,920	166,270	215,502	692,593	908,095	
1998	136,515	83.4%	113,885	59,001	0	59,001	54,884	508,686	563,570	
1999	290,325	85.5%	248,167	96,438	0	96,438	151,729	723,298	875,028	
2000	680,536	88.6%	602,838	226,317	0	226,317	376,521	1,342,141	1,718,662	
2001	358,987	85.1%	305,590	84,005	0	84,005	221,585	540,124	761,709	
2002	630,486	94.5%	595,690	143,912	0	143,912	451,778	1,151,413	1,603,191	
2003	348,820	96.8%	329,961	91,507	0	91,507	238,454	1,826,922	2,065,376	
2004	688,471	91.7%	631,307	316,675	0	398,524	288,548	1,060,801	1,408,117	
2005 ^a	N/A	N/A	N/A	277,000	0	277,000	114,000	375,000	489,000	
91–04 Average	392,411	1	337,483	134,992	985	141,824	200,628	836,996	1,097,683	

^a 2005 projected return.

^b Includes contribution to the Lynn Canal commercial drift gillnet fishery only.

Source: Douglas Island Pink and Chum Inc.

Table 15.—Chilkoot Lake mark-recapture point estimates with 95% confidence intervals, compared to Chilkoot weir count, 1996–2004.

Year	Lower 95% normal CI	Mark-Recapture Point Estimate	Upper 95% normal CI	Chilkoot Weir Count
1996 ^a	46,000	65,000	83,000	50,739
1997 ^a	68,000	79,000	89,000	44,254
1998 ^b	18,000	28,000	38,000	12,335
1999	50,000	62,000	74,000	19,284
2000	50,000	60,000	70,000	43,555
2001	81,000	100,000	119,000	76,283
2002	52,000	61,000	70,000	58,361
2003	99,000	177,000	254,000	74,459
2004	111,000	163,000	216,000	75,596

^aBeesley, ADFG, unpublished data

^bBachman and Kelley, 1999

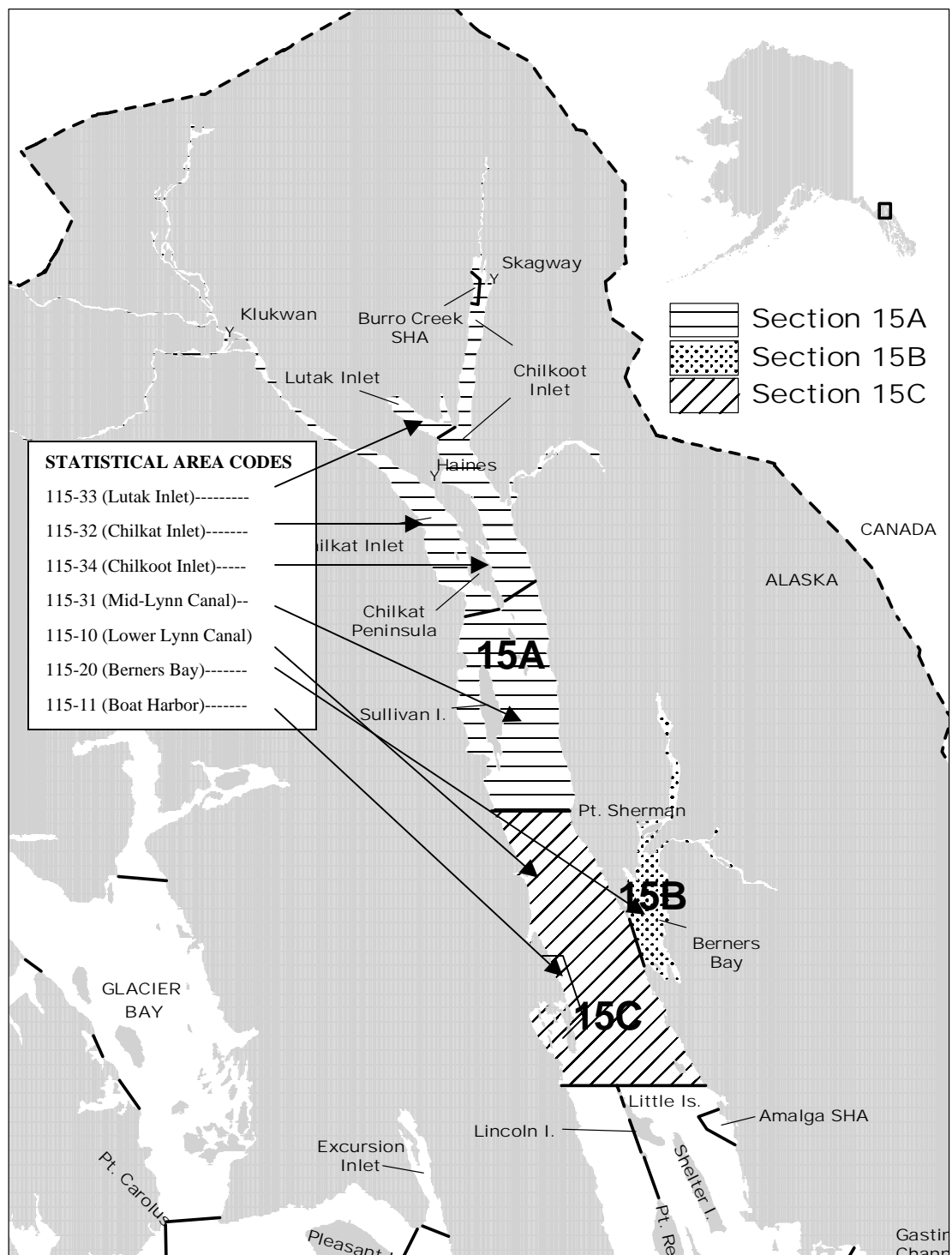


Figure 1.– Lynn Canal district, section and statistical area boundaries.

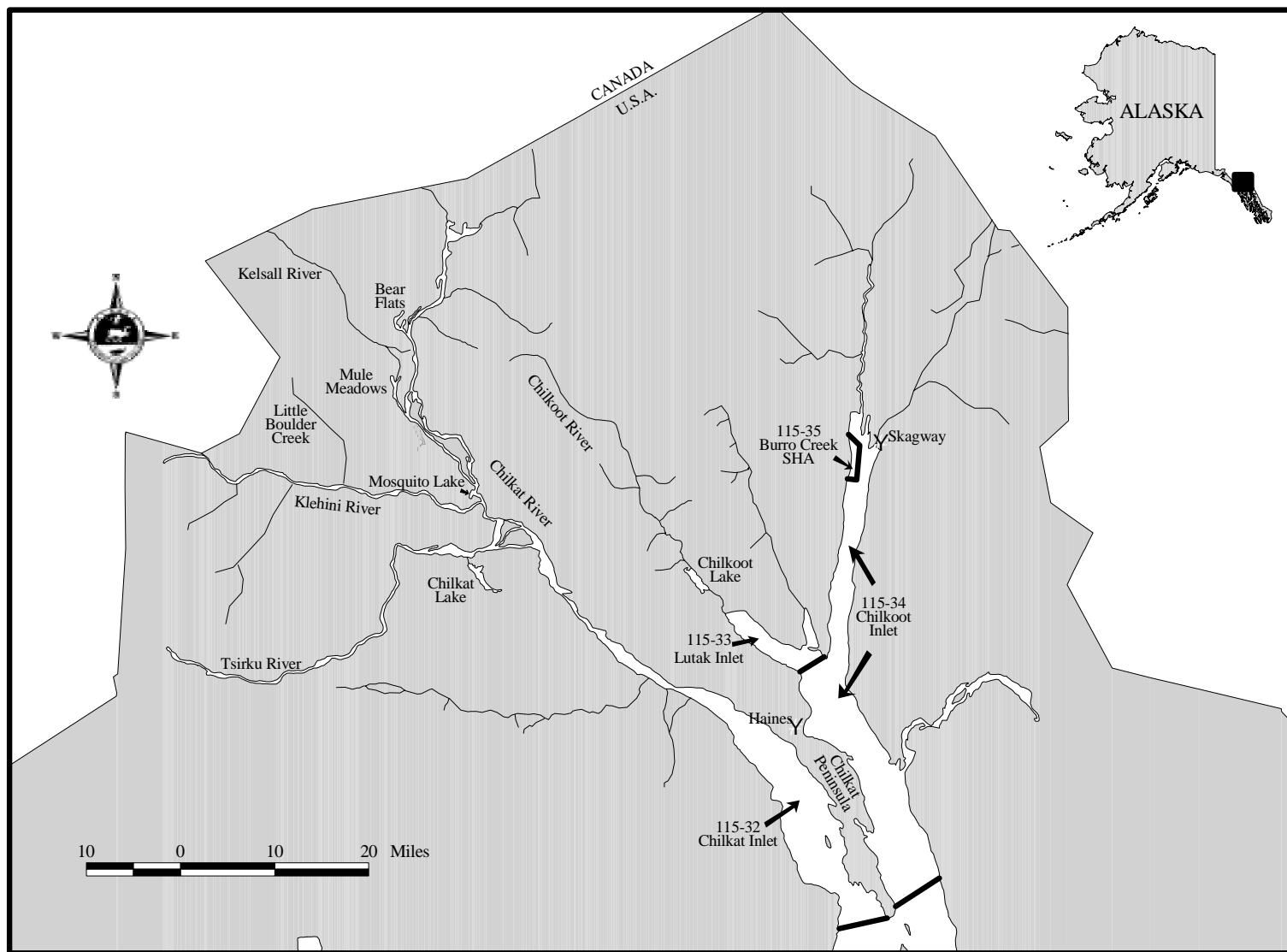


Figure 2.—Upper Lynn Canal showing Chilkat and Chilkoot lakes.

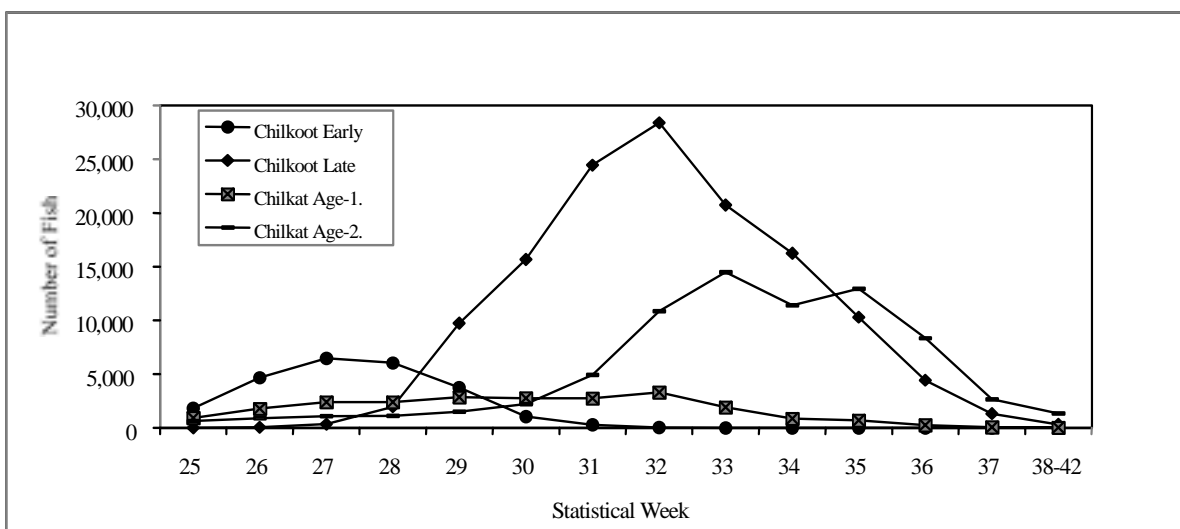


Figure 3.—Lynn Canal sockeye salmon weekly abundance by stock. Data for period 1976 to 1992.

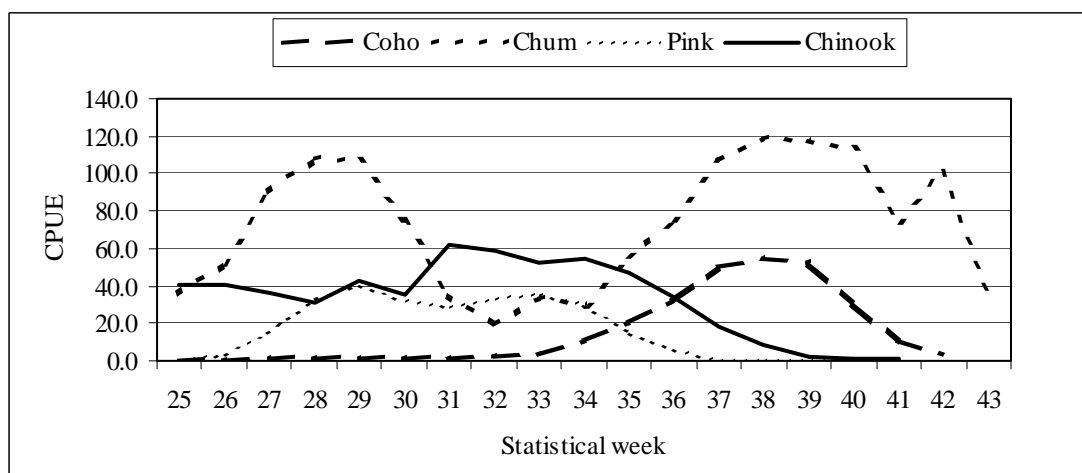


Figure 4.—Run timing (weekly proportion CPUE) of Chinook, coho, summer and fall chum, and pink salmon in the Lynn Canal drift gillnet fishery. Data for period 1992 to 2004.

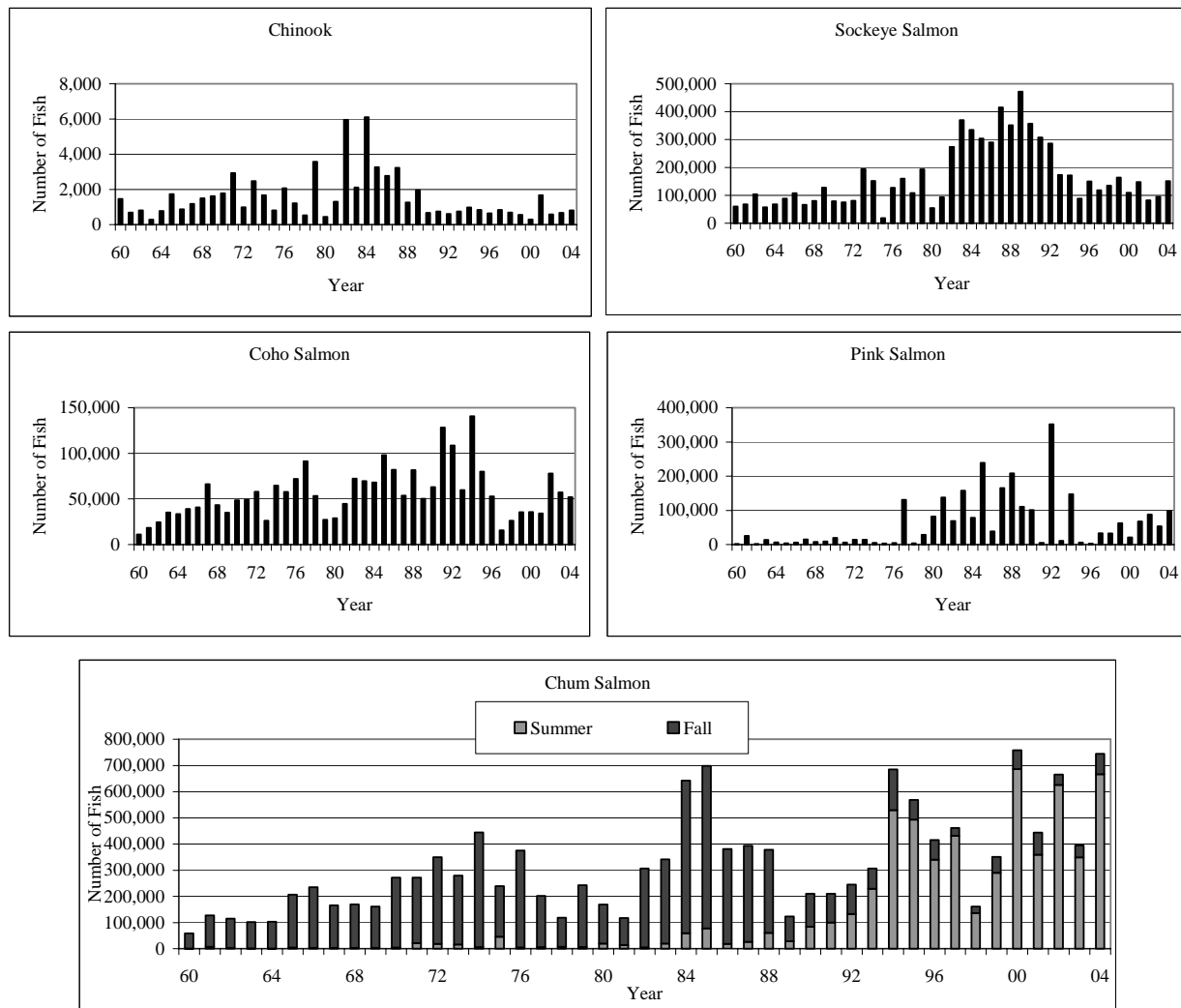


Figure 5.—Historical catches of Chinook, sockeye, coho, pink, and chum salmon in the District 15 (Lynn Canal) drift gillnet fishery, 1960 to 2004.

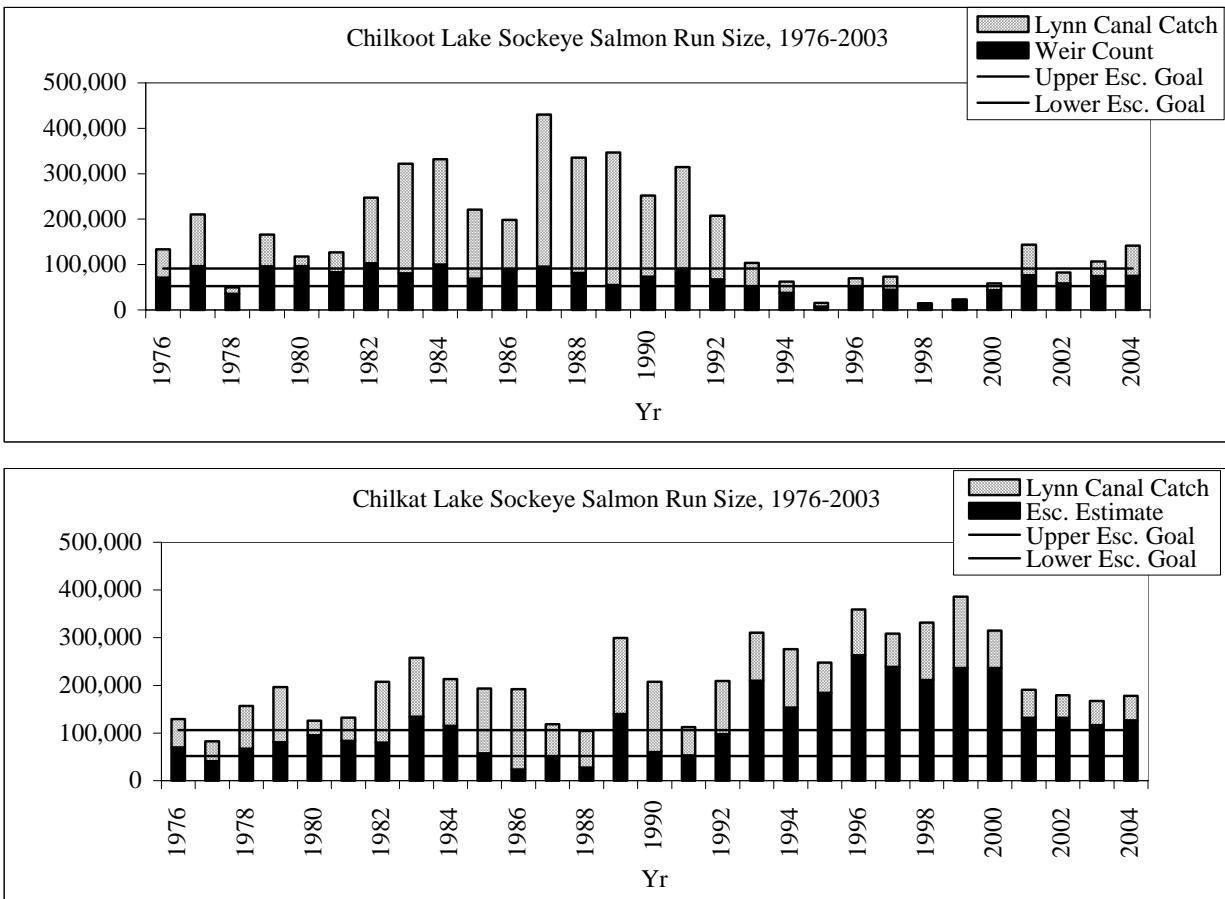


Figure 6.—Historical escapement and harvest of Chilkoot and Chilkat lake sockeye salmon, 1976 to 2004.

Note: Escapements estimates in 1994–2003 in Chilkat Lake were based on mark-recapture estimates. Marine harvest of sockeye salmon for Chilkoot Lake in 1998 and 1999 was estimated to be 2,200 and 4,258 fish, respectively.

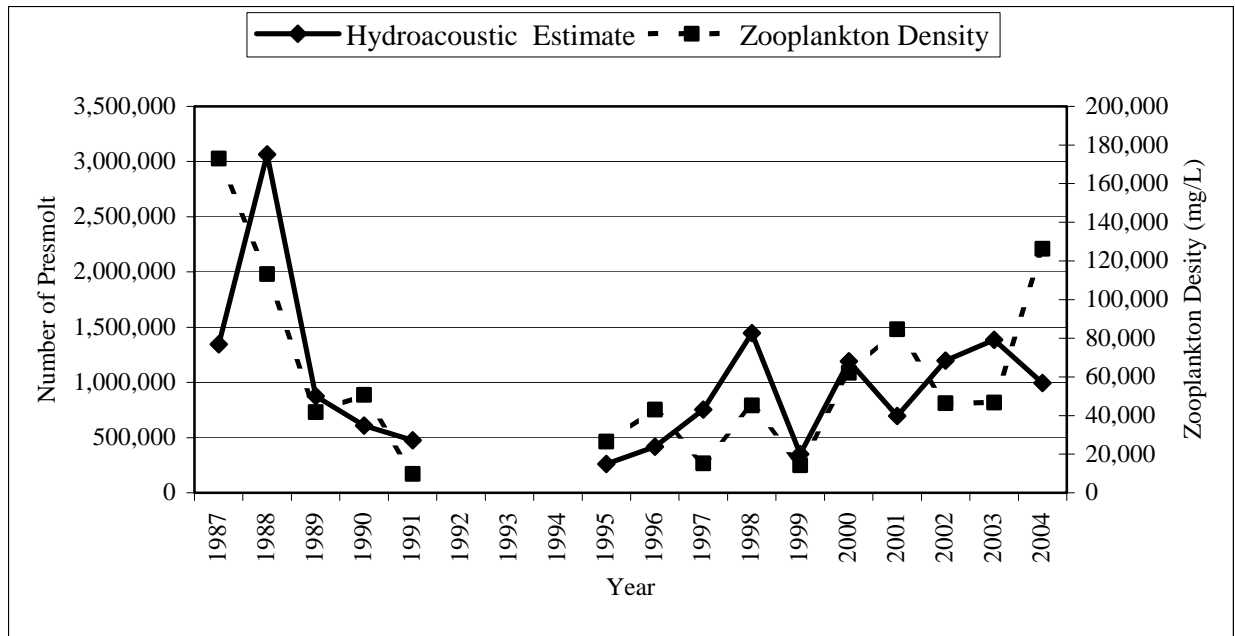


Figure 7—Yearly comparisons of Chilkoot Lake autumn hydroacoustic counts of juvenile sockeye salmon and average zooplankton densities, 1987–1991 and 1995–2004.

Source: D. Barto, ADF&G Commercial Fisheries Division, unpublished data.

Note: 2004 zooplankton data not available at time of this report.

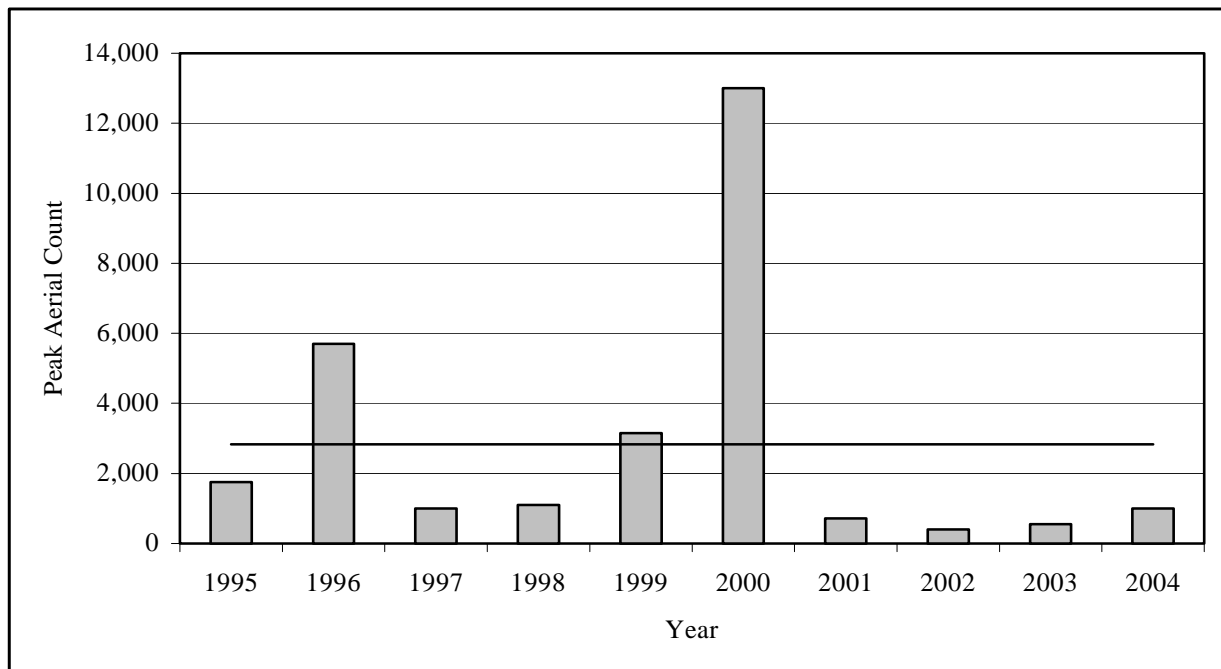


Figure 8—Peak aerial survey results for Sawmill Creek chum salmon, 1993–2004.

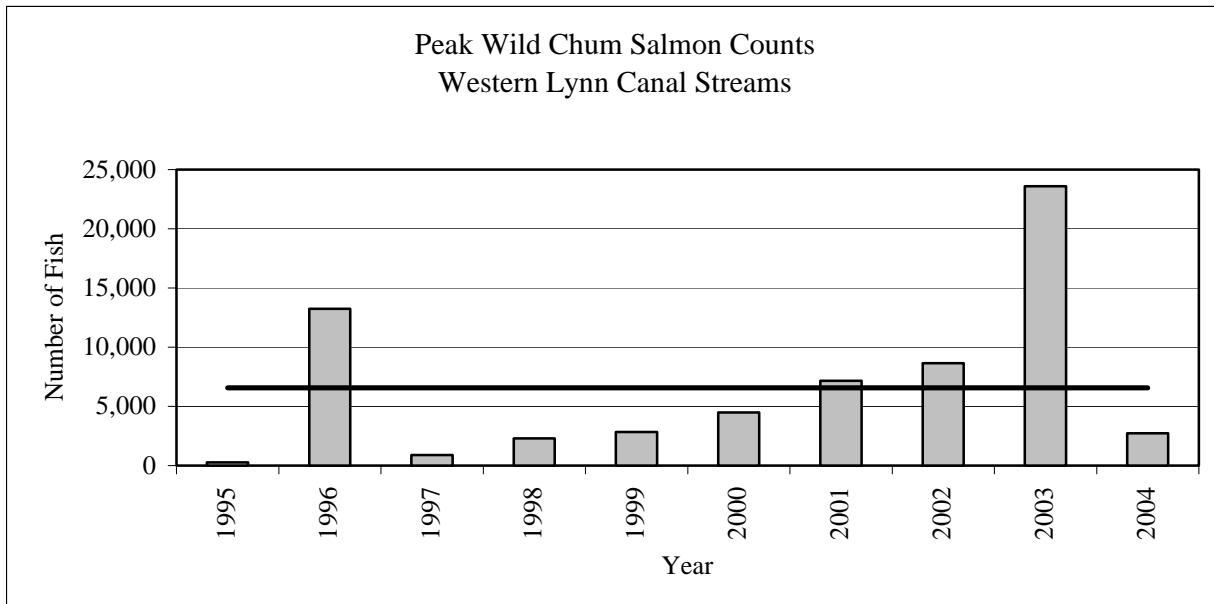


Figure 9.–Peak aerial survey results for Western Lynn Canal chum salmon streams combined, 1995–2004 compared to the 1995–2004 average.

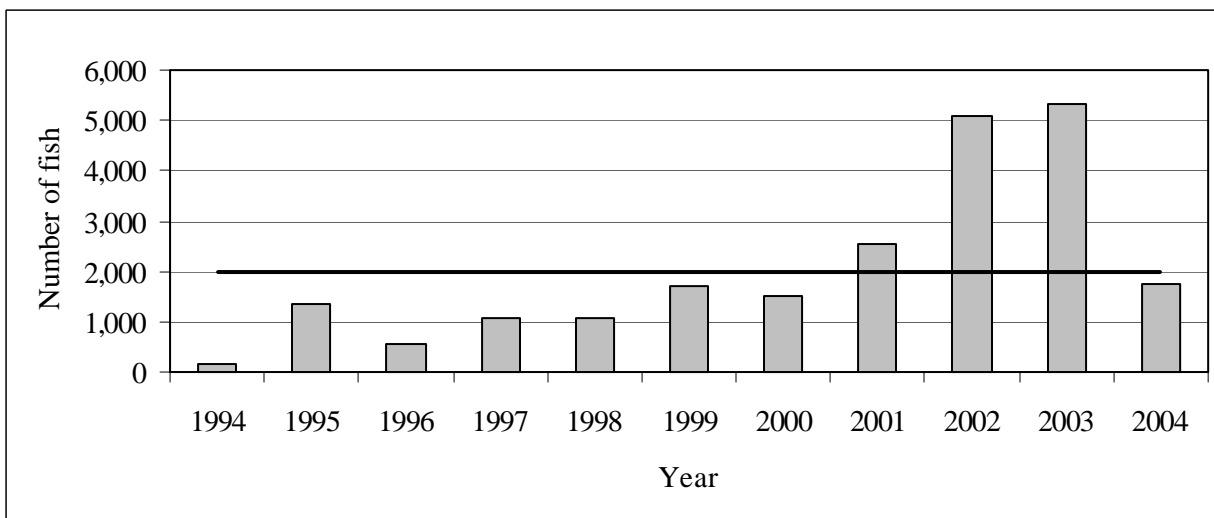


Figure 10.–Total Chilkat River coho salmon fish wheel catch by year, 1994–2003 compared to the 1994–2004 average.

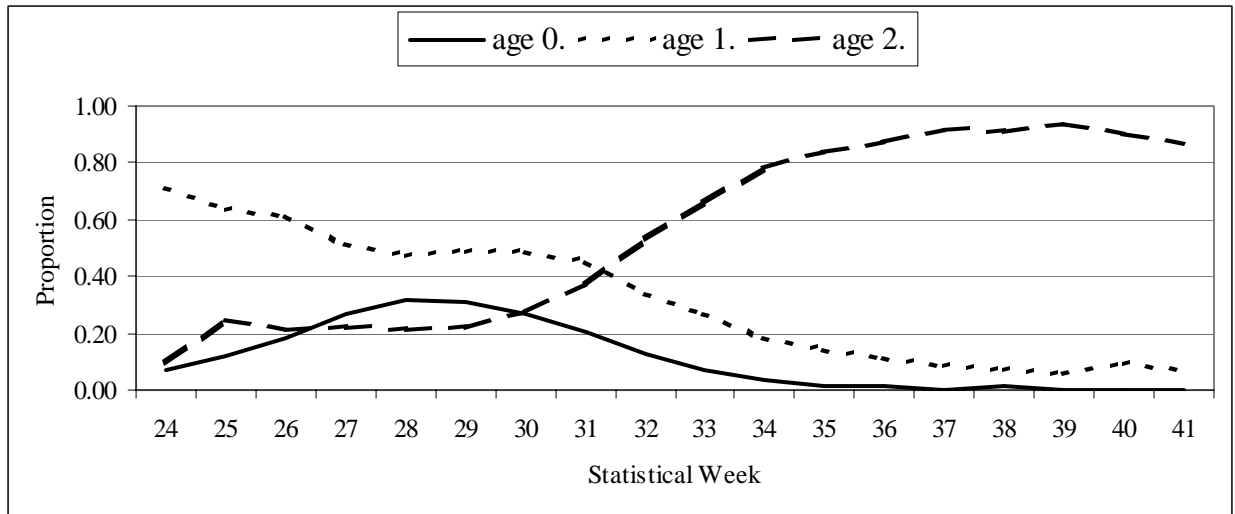


Figure 11.—Average 1994–2004 run timing for Chilkat River sockeye salmon stocks at the Chilkat River fish wheels by fresh water age class.

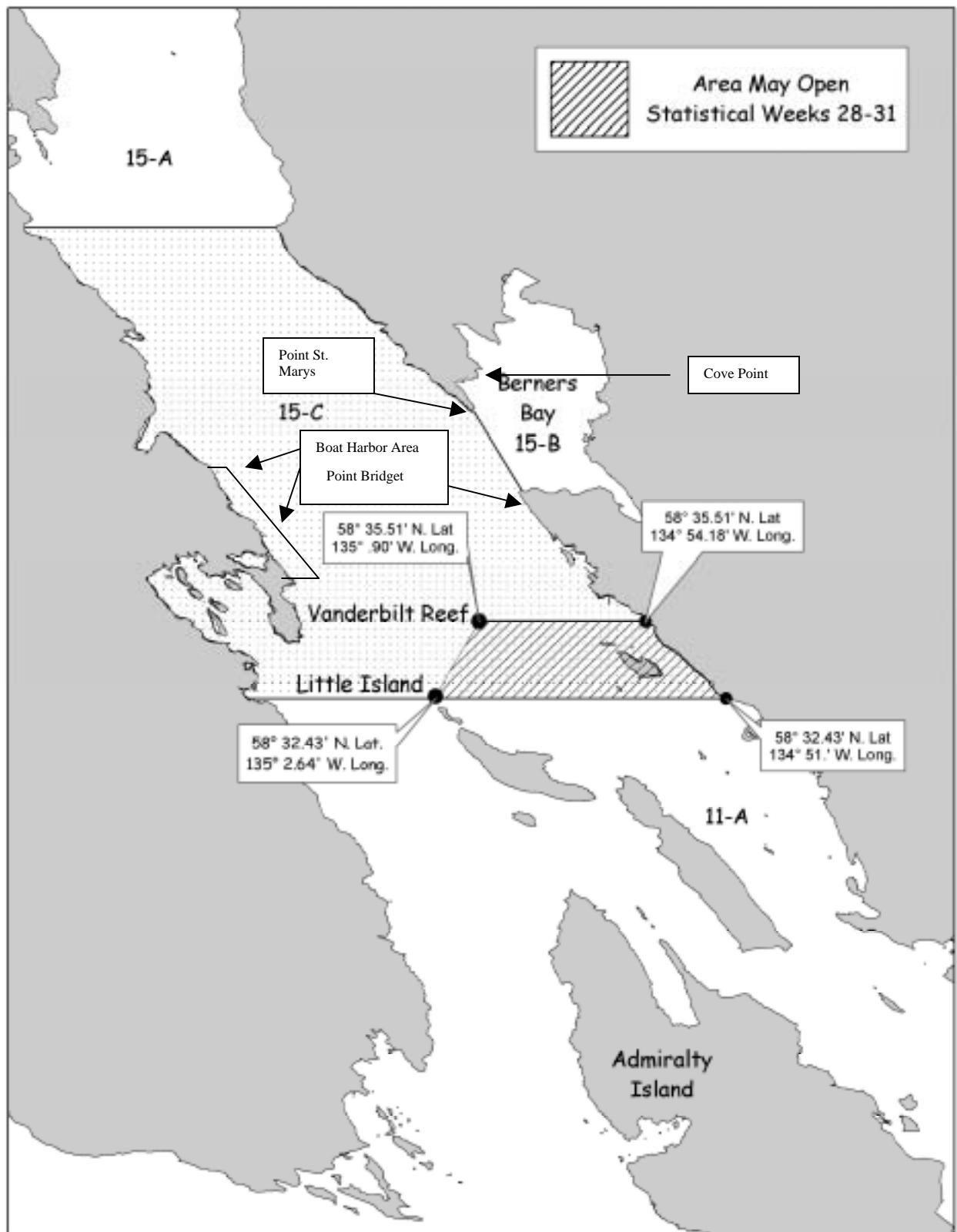


Figure 12.—Map showing possible area in Lower Lynn Canal that may be opened for additional time during peak weeks of hatchery chum return (Statistical Weeks 28–31).

**APPENDIX A: LYNN CANAL AND CHILKAT RIVER KING
SALMON FISHERY MANAGEMENT PLAN**

Appendix A1–5 AAC 33.384. Lynn Canal and Chilkat River King Salmon Fishery Management Plan.

(a) The purpose of this management plan is to ensure biological spawning escapement requirements of king salmon to the Chilkat River. It is the intent of the Board of Fisheries (board) that the Chilkat River king salmon be harvested in the fisheries that have historically harvested them. The board, through this management plan, recognizes that the commercial drift gillnet fishery in Chilkat Inlet, and the subsistence fisheries in Chilkat Inlet and the Chilkat River are directed primarily toward sockeye salmon but catch king salmon incidentally. A secondary goal of this management plan is to provide a reasonable opportunity to harvest sockeye salmon in the Chilkat Inlet and Chilkat River subsistence fisheries while minimizing the incidental harvest of king salmon. This management plan provides the department guidelines to preclude allocation conflicts between the various user groups of this resource. The department shall manage the Chilkat River king salmon stocks in a conservative manner consistent with sustained yield principles.

(b) The department shall close the subsistence net fisheries in Chilkat Inlet north of a line extending from an ADF&G regulatory marker approximately one mile south of Anchorage Point to an ADF&G regulatory marker directly north of the Lenikof Cove boat ramp, through July 15. In the Chilkat River, excluding that portion of the river from Haines highway mile 19, continuing upstream to Well's Bridge, from approximately the third week of June through the fourth week of July.

(c) The department shall manage the commercial and sport fisheries in Lynn Canal to achieve an inriver run goal of 1,850 to 3,600 king salmon in the Chilkat River upstream of the department fish wheels located approximately adjacent to mile 9 of the Haines highway. The inriver run goal provides for the following:

(1) a biological escapement goal (BEG) of 1,750 to 3,500 large king salmon (three ocean age and older) to the Chilkat River; and

(2) an incidental harvest of king salmon in the Chilkat River subsistence sockeye fishery.

(d) The department will evaluate the inriver run of king salmon based on the following:

(1) primarily a pre-season projected run of Chilkat River king salmon to Lynn Canal;

(2) inseason fisheries performance; and

(3) inriver stock assessment programs.

(e) The department shall manage the commercial and drift gillnet and troll fisheries in Lynn Canal, and the sport king salmon fishery in Chilkat Inlet, as follows:

(1) the department shall close the commercial troll fishery in Chilkat Inlet north of a ADF&G regulatory marker immediately north of Seduction Point through July 14;

(2) if the projected inriver run of king salmon to the Chilkat River is 1,850 fish (three ocean age and older) or less, the department shall:

(A) close the commercial drift gillnet fishery in Chilkat Inlet north of a ADF&G regulatory marker immediately north of Seduction Point through the first two weeks of the fishery; during the third and fourth week of the fishery, the Chilkat Inlet north of Glacier Point shall be closed; during the fifth week, the commercial drift gillnet fishery in Chilkat Inlet north of Cannery Point shall be closed; and

(B) close sport fishing for king salmon in Chilkat Inlet north of a ADF&G regulatory marker immediately north of Seduction Point through June 30; close king salmon fishing in Chilkat Inlet north of a line extending from an ADF&G regulatory marker one mile south of Anchorage Point to an ADF&G regulatory marker directly north of the Letnikof Cove boat ramp, through July 15; in the remainder of Chilkat Inlet north of Seduction Point, from July 1 – July 15, sport fisherman are allowed a bag and possession limit of one king salmon, 28 inches or greater in length;

(3) if the projected inriver run of king salmon to the Chilkat River is 1,850 to 3,600 fish the department shall;

(A) close the commercial drift gillnet fishery in Chilkat Inlet north of a ADF&G regulatory marker immediately north of Seduction Point through the first two weeks of the fishery; during the third week of the fishery, close the area in Chilkat Inlet north of Glacier Point; during the fourth week, close the area in Chilkat Inlet north of Cannery Point; and

(B) close sport fishing for king salmon in Chilkat Inlet north of a line extending from an ADF&G regulatory marker approximately one mile south of Anchorage Point to an ADF&G regulatory marker directly north of the Lenikof Cove boat ramp from April 15 through July 15;

(4) if the projected inriver run of king salmon to the Chilkat River is greater than 3,600 fish the department shall;

(A) close the commercial drift gillnet fishery in Chilkat Inlet north of a ADF&G regulatory marker immediately north of Seduction Point through the first week of the fishery; during the second week of the fishery, close the area in Chilkat Inlet north of Glacier Point; during the third week, close the area in Chilkat Inlet north of Cannery Point; and

(B) close sport fishing for king salmon in Chilkat Inlet north of a line extending from an ADF&G regulatory marker approximately one mile south of Anchorage Point to an ADF&G regulatory marker directly north of the Lenikof Cove boat ramp from April 15 through July 15; the commissioner may, through emergency order, increase the bag and possession limits of king salmon north of Seduction Point.

APPENDIX B: CALENDAR DATES FOR STATISTICAL WEEKS IN 2005

Appendix B1.—Calendar dates for statistical weeks in 2005.

2005 Calendar Weeks

Week	Beginning Date	Ending Date	Week	Beginning Date	Ending Date
1	1-Jan	1-Jan	28	3-Jul	9-Jul
2	2-Jan	8-Jan	29	10-Jul	16-Jul
3	9-Jan	15-Jan	30	17-Jul	23-Jul
4	16-Jan	22-Jan	31	24-Jul	30-Jul
5	23-Jan	29-Jan	32	31-Jul	6-Aug
6	30-Jan	5-Feb	33	7-Aug	13-Aug
7	6-Feb	12-Feb	34	14-Aug	20-Aug
8	13-Feb	19-Feb	35	21-Aug	27-Aug
9	20-Feb	26-Feb	36	28-Aug	3-Sep
10	27-Feb	5-Mar	37	4-Sep	10-Sep
11	6-Mar	12-Mar	38	11-Sep	17-Sep
12	13-Mar	19-Mar	39	18-Sep	24-Sep
13	20-Mar	26-Mar	40	25-Sep	1-Oct
14	27-Mar	2-Apr	41	2-Oct	8-Oct
15	3-Apr	9-Apr	42	9-Oct	15-Oct
16	10-Apr	16-Apr	43	16-Oct	22-Oct
17	17-Apr	23-Apr	44	23-Oct	29-Oct
18	24-Apr	30-Apr	45	30-Oct	5-Nov
19	1-May	7-May	46	6-Nov	12-Nov
20	8-May	14-May	47	13-Nov	19-Nov
21	15-May	21-May	48	20-Nov	26-Nov
22	22-May	28-May	49	27-Nov	3-Dec
23	29-May	4-Jun	50	4-Dec	10-Dec
24	5-Jun	11-Jun	51	11-Dec	17-Dec
25	12-Jun	18-Jun	52	18-Dec	24-Dec
26	19-Jun	25-Jun	53	25-Dec	31-Dec
27	26-Jun	2-Jul			

**APPENDIX C: HISTORICAL AGE COMPOSITIONS OF SOCKEYE
SALMON ESCAPEMENTS TO CHILKOOT LAKE, CHILKAT
LAKE, CHILKAT RIVER MAINSTEM AND BERNERS BAY
RIVERS.**

Appendix C1.—Historical age composition of sockeye salmon escapements to Chilkat and Chilkoot lakes, 1982 to 2004.

Chilkat Lake Sockeye												
Year	Sample	Percent by Age Class										
	Size	0.3	1.1	1.2	1.3	1.4	2.1	2.2	2.3	2.4	3.2	3.3
1982	1,630	0.1	0.4	2.3	12.9	0.0	2.6	45.3	34.8	0.0	1.3	0.1
1983	2,848	0.0	0.7	3.2	38.0	0.0	2.7	27.9	27.1	0.0	0.1	0.0
1984	2,728	0.0	0.1	1.5	22.8	0.0	1.5	53.6	20.2	0.0	0.2	0.0
1985	1,333	0.0	0.6	0.7	9.2	0.2	3.3	39.7	45.7	0.0	0.5	0.0
1986	940	0.0	0.0	1.7	1.6	0.0	0.5	20.6	73.1	0.0	1.9	0.5
1987	1,461	0.0	0.9	1.8	24.5	0.0	2.7	34.2	35.0	0.1	0.5	0.2
1988	1,918	0.1	0.0	0.8	47.3	0.2	0.0	7.9	43.4	0.1	0.1	0.1
1989	3,874	0.0	0.0	0.7	42.8	0.1	0.0	28.9	27.3	0.0	0.0	0.1
1990	2,635	0.1	0.0	1.8	14.0	0.5	0.0	24.8	58.0	0.1	0.8	0.0
1991	1,602	0.0	0.0	2.1	36.1	0.1	0.0	21.8	39.5	0.2	0.0	0.2
1992	2,505	0.1	0.0	1.1	40.8	0.2	0.0	16.9	40.7	0.0	0.0	0.1
1993	2,367	0.1	0.0	6.4	15.0	0.0	0.0	36.2	38.7	0.0	3.6	0.0
1994	2,187	0.0	0.0	2.6	58.6	0.1	0.0	11.4	26.6	0.0	0.1	0.6
1995	2,691	0.0	0.0	5.5	27.1	0.9	0.0	17.7	48.6	0.0	0.1	0.0
1996	308	0.0	0.0	10.4	67.5	0.0	0.0	8.8	13.3	0.0	0.0	0.0
1997	750	0.0	0.4	38.8	19.9	0.0	1.3	14.0	25.6	0.0	0.0	0.0
1998	1,198	0.0	0.1	4.9	69.4	0.0	0.3	19.0	6.0	0.2	0.0	0.0
1999	2,548	0.0	0.0	1.7	31.6	0.1	0.0	14.3	52.0	0.2	0.0	0.0
2000	2,316	0.0	0.0	2.4	5.1	0.3	0.0	7.8	81.4	0.1	2.8	0.0
2001	2,441	0.0	0.0	2.9	54.7	0.1	0.0	11.8	25.9	0.2	0.1	4.1
2002	2,504	0.0	0.0	2.5	26.5	0.4	0.1	20.1	50.3	0.0	0.0	0.0
2003	2,169	0.1	0.2	5.1	21.0	0.2	0.4	14.8	57.5	0.3	0.3	0.0
2004	3,004	0.1	0.1	3.5	49.7	0.0	0.2	17.2	28.4	0.2	0.1	0.4
Average	2,085	0.0	0.2	4.5	32.0	0.1	0.7	22.4	39.1	0.1	0.5	0.3
SE		0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.0

Chilkoot Lake Sockeye												
Year	Sample	Percent By Age Class										
	Size	0.3	1.1	1.2	1.3	1.4	2.1	2.2	2.3	2.4	3.2	3.3
1982	1,687	0.1	0.0	19.0	78.4	0.9	0.1	0.5	0.9	0.0	0.0	0.0
1983	1,790	0.1	0.1	12.0	60.4	0.2	0.1	1.4	25.8	0.0	0.0	0.0
1984	1,902	0.0	0.0	4.5	86.7	0.8	0.0	0.4	7.6	0.0	0.0	0.0
1985	1,623	0.0	0.1	12.2	66.4	2.4	0.0	2.6	15.9	0.3	0.1	0.0
1986	2,147	0.0	0.0	13.2	67.0	0.6	0.0	2.2	16.8	0.1	0.0	0.0
1987	2,207	0.0	0.0	8.4	69.2	0.2	0.0	2.2	19.8	0.1	0.0	0.0
1988	2,661	0.0	0.0	4.4	77.9	1.4	0.0	2.7	13.2	0.3	0.0	0.0
1989	2,586	0.0	0.0	4.5	54.9	1.2	0.0	5.0	33.5	0.4	0.0	0.5
1990	2,815	0.0	0.0	2.0	45.4	0.1	0.0	1.5	49.1	0.1	0.0	0.1
1991	2,297	0.0	0.0	12.5	55.9	0.4	0.0	4.9	25.9	0.3	0.0	0.1
1992	2,039	0.0	0.0	1.8	62.6	0.7	0.0	5.8	28.3	0.5	0.1	0.1
1993	2,075	0.0	0.0	2.6	35.6	0.3	0.0	1.8	59.0	0.4	0.0	0.2
1994	1,986	0.1	0.0	1.8	66.9	0.6	0.0	1.6	28.8	0.2	0.1	0.1
1995	606	0.0	0.0	44.1	30.7	0.8	0.0	3.8	20.0	0.7	0.0	0.0
1996	2,063	0.0	0.0	6.2	84.2	0.2	0.0	0.8	8.5	0.0	0.0	0.0
1997	2,111	0.0	0.0	2.2	90.1	0.1	0.0	0.4	7.1	0.0	0.0	0.0
1998	941	0.0	0.0	5.0	60.6	1.4	0.0	2.1	30.6	0.1	0.0	0.1
1999	2,033	0.0	0.0	28.8	46.5	0.2	0.0	8.1	16.3	0.2	0.0	0.0
2000	2,228	0.0	0.0	13.2	58.6	0.1	0.0	1.9	26.1	0.0	0.0	0.0
2001	2,345	0.3	0.0	4.8	89.8	0.0	0.0	0.2	4.9	0.0	0.0	0.0
2002	2,836	0.0	0.0	6.4	89.6	0.5	0.0	1.1	2.5	0.0	0.0	0.0
2003	2,611	0.0	0.0	41.3	45.0	0.4	0.0	4.2	9.1	0.0	0.0	0.0
2004	2,715	0.0	0.0	14.8	71.0	0.0	0.0	5.9	8.1	0.0	0.0	0.0
Average	2,100	0.0	0.0	11.6	64.9	0.6	0.0	2.7	19.9	0.2	0.0	0.1
SE		0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0

Appendix C2.—Historical age composition of sockeye salmon escapements to Chilkat River mainstem areas, 1984 to 2004.

Sample		Percent by Age Class										
Year	Size	0.1	0.2	0.3	0.4	1.1	1.2	1.3	1.4	2.2	2.3	2.4
1984	145	0.0	6.2	26.2	0.0	0.7	2.1	64.8	0.0	0.0	0.0	0.0
1985	136	0.0	14.7	42.6	0.0	0.0	0.0	39.7	0.7	1.5	0.7	0.0
1986	114	0.0	6.1	49.1	0.9	0.0	14.9	26.3	0.9	0.0	0.9	0.9
1987	51	0.0	9.8	9.8	0.0	0.0	3.9	74.5	0.0	0.0	2.0	0.0
1988	93	1.1	36.6	32.3	0.0	1.1	23.7	5.4	0.0	0.0	0.0	0.0
1989	195	0.0	4.6	27.2	0.0	0.0	3.6	63.1	0.0	0.5	1.0	0.0
1990	57	0.0	14.0	19.3	0.0	0.0	5.3	57.9	0.0	0.0	3.5	0.0
1991	310	0.6	21.0	52.3	0.0	1.0	9.7	15.5	0.0	0.0	0.0	0.0
1992	437	0.5	18.3	24.9	0.5	2.1	3.2	50.6	0.0	0.0	0.0	0.0
1993	67	0.0	1.5	85.1	0.0	0.0	0.0	13.4	0.2	0.0	0.0	0.0
1994	574	2.4	31.5	26.5	0.0	2.4	20.4	16.0	0.0	0.5	0.0	0.0
1995	474	0.0	29.7	36.1	0.2	0.0	12.4	21.5	0.0	0.0	0.0	0.0
1996	585	0.0	11.6	62.4	0.0	0.2	5.6	20.2	0.0	0.0	0.0	0.0
1997	437	0.2	18.3	62.9	0.0	0.0	3.2	15.3	0.0	0.0	0.0	0.0
1998	429	1.2	28.0	42.0	0.0	1.9	7.5	19.6	0.0	0.0	0.0	0.0
1999	334	5.1	47.3	14.4	0.0	4.2	20.1	8.4	0.0	0.6	0.0	0.0
2000	556	0.0	28.4	62.6	0.0	0.4	4.5	4.1	0.0	0.0	0.0	0.0
2001	438	0.0	3.4	49.8	0.0	0.0	6.8	40.0	0.0	0.0	0.0	0.0
2002	302	0.7	13.6	21.9	0.0	0.7	10.9	52.3	0.0	0.0	0.0	0.0
2003	547	0.0	47.9	21.4	0.0	2.6	13.3	14.4	0.0	0.0	0.2	0.0
2004	848	0.0	14.4	47.6	0.0	0.0	21.9	15.8	0.0	0.2	0.0	0.0
Average	261	0.6	19.6	38.4	0.1	0.9	8.6	31.2	0.1	0.2	0.4	0.0
SE		0.0	0.2	0.2	0.0	0.0	0.1	0.3	0.0	0.0	0.0	0.0

Appendix C3.—Historical age composition of sockeye salmon escapements to Berners Bay rivers, 1984 to 2004.

Year	Sample	Percent by Age Class										
	Size	0.1	0.2	0.3	0.4	1.1	1.2	1.3	1.4	2.1	2.2	2.3
1984	319	0.0	0.0	6.6	0.0	0.0	1.6	91.8	0.0	0.0	0.0	0.0
1985	84	3.6	10.7	4.8	1.2	4.8	11.9	61.9	0.0	0.0	1.2	0.0
1986	189	0.0	2.6	35.4	0.0	2.1	12.7	46.0	0.0	0.0	0.0	1.1
1987	133	0.0	0.0	32.3	0.0	0.0	4.5	62.4	0.0	0.0	0.0	8.0
1988	109	0.0	0.0	7.3	0.0	0.0	10.1	82.6	0.0	0.0	0.0	0.0
1989	285	0.0	1.8	2.1	0.0	1.1	6.7	85.3	0.0	0.4	0.7	2.1
1990	136	0.0	2.2	14.7	0.0	3.7	40.4	33.8	0.0	0.0	0.7	4.4
1991	409	0.7	3.2	27.6	0.0	1.5	15.6	50.1	0.2	0.0	0.2	0.7
1992	452	0.0	2.7	18.4	0.0	0.9	4.0	74.1	0.0	0.0	0.0	0.0
1993	451	0.0	1.3	30.8	0.0	0.9	14.4	51.7	0.0	0.0	0.2	0.7
1994	478	0.0	1.3	3.3	0.0	3.8	13.2	77.8	0.2	0.0	0.2	0.2
1995	333	0.0	2.7	13.5	0.0	0.3	35.7	45.3	1.2	0.0	0.6	0.6
1996	492	0.0	0.2	8.9	0.0	0.4	2.8	87.6	0.0	0.0	0.0	0.0
1997	218	0.5	0.9	38.5	0.0	0.9	11.0	48.2	0.0	0.0	0.0	0.0
1998	314	0.0	0.3	14.6	0.0	0.3	4.1	80.6	0.0	0.0	0.0	0.0
1999	297	0.3	0.3	6.7	0.0	1.0	8.1	82.2	0.0	0.0	0.0	1.3
2000	290	0.0	4.5	19.3	0.0	0.3	12.1	63.4	0.0	0.0	0.0	0.3
2001	339	0.0	1.2	17.7	0.3	3.2	4.7	72.9	0.0	0.0	0.0	0.0
2002	235	0.4	1.3	5.1	0.0	0.9	24.3	68.1	0.0	0.0	0.0	0.0
2003	278	0.0	1.1	11.2	0.0	1.1	17.1	72.7	0.0	0.0	0.0	7.6
2004	187	0.0	0.5	5.3	0.0	1.1	17.1	75.9	0.0	0.0	0.0	0.0
Average	287	0.3	1.8	15.4	0.1	1.3	13.0	67.4	0.1	0.0	0.2	1.3
SE		0.0	0.0	0.1	0.0	0.0	0.1	0.2	0.0	0.0	0.0	0.0

**APPENDIX D: DATA COLLECTED FROM THE INSEASON
INFORMATION SYSTEM TO DETERMINE FISHERY
PERFORMANCE BY SPECIES**

Appendix D1.—Data collected from the inseason information system to determine fishery performance by species.

Sockeye Salmon

- a. Inseason abundance forecasts: Forecasts will be obtained by comparing current-year total return information (catch plus escapement), and expanding those results by historical run timing percentages for each stock.
- b. Escapement tracking: Daily escapements are tracked at the Chilkoot River weir. The weir provides timely data for inseason assessment as fish pass that weir within one week of fishery. Chilkat Lake/River sockeye salmon escapements will be monitored using two fish wheels in the lower Chilkat River. Fish wheel catch alone is not a definitive index of abundance but current year data will be compared to historic data. The Chilkat weir will be operated to provide a site for mark-recovery, biological sampling, and a timely preliminary estimate of escapement into Chilkat Lake.
- c. Inseason catch figures: Inseason catch figures are from the ADF&G fish ticket system. In the first 24 hours of an opening interview data from the fleet is used to estimate catches. After that time a subsample of deliveries is expanded to total effort to estimate weekly catch.
- d. Stock contributions: Inseason catch stock contributions are estimated each week from random scale samples. Estimates are made for three groups: Chilkoot Lake, Chilkat Lake, and a combination of Berners Bay and Chilkat mainstem. Postseason stock contributions are made to add to the historic database from which models are derived. Escapements are sampled for scales to determine age structure of spawners in order to combine with catch data for spawner-recruit and preseason databases.
- e. Fishery monitoring: Site-specific fishery performance data and scale sampling are used to monitor migration paths and identify areas of overlap between stocks. Information is also provided on fish buildups in specific areas.

Fall and Summer Chum and Pink Salmon

- a. Inseason catch figures: Inseason catch data are obtained from the ADF&G fish ticket system. In the first 24 hours of an opening interview data from the fleet are used to estimate total harvests. After that time, a subsample of deliveries is expanded to total effort to estimate catches.
- b. Aerial surveys and fish wheel catch: Escapement rates and distribution are monitored by aerial survey inseason when feasible and throughout the peak spawning period. Current fish wheel catches of salmon are compared to historical levels to estimate escapement rates.
- c. Fishery monitoring: Collect catch data and other fishery performance information such as effort level, fishing conditions, influence of northerly winds on rate of entry into Chilkat River, and observations of fish buildups.
- d. Fish wheel index: Lower Chilkat River fish wheel catch rates will be compared to the historical database to be used as an indicator of abundance.

Coho Salmon

- a. Inseason catch figures: Inseason catch figures from the ADF&G fish ticket system.
- b. Aerial and foot surveys: Peak spawner counts are not obtained until postseason. However, in some index systems, Berners River and Chilkoot Lake, early season surveys provide an indication of escapement rates when water levels and conditions allow.
- c. Fishery monitoring: Availability of coho salmon is judged by comparing current CPUE and catch to the historical average and by the relative abundance of coho salmon in specific areas.
- d. Fish wheel index: Lower Chilkat River fish wheel catch rates will be compared to the historical database to be used as an indicator of abundance.
- e. Berners River coded-wire tag monitoring and inseason projections: Coded-wire tag recoveries for Berners River and Chilkat River coho salmon are monitored inseason by commercial fisheries staff. Data collected from this program will be used to project the total return of Berners and Chilkat River coho salmon. This system is assumed to be an index for other Lynn Canal coho salmon stocks.

**APPENDIX E: INCLUSIVE DATES OPERATION FOR CHILKOOT
LAKE AND CHILKAT LAKE WEIRS AND CHILKAT RIVER FISH
WHEELS.**

Appendix E1.—Inclusive dates of operation for Chilkoot and Chilkat weirs and Chilkat River fish wheels, 1967 to 2004.

Year	Chilkoot Lake Weir Operation	Chilkat Lake Weir Operation	Chilkat River Fish Wheel Operation
1967	None	6/13-9/02	
1968	None	6/8-9/12	
1969	None	6/4-9/16	
1970	None	5/29-9/17	
1971	None	5/31-10/28	
1972	None	6/3-10/12	
1973	None	6/11-10/15	
1974	None	5/30-9/28	
1975	None	6/4-11/06	
1976	5/30-11/2	6/3-10/21	
1977	5/28-9/11	6/3-9/27	8/21-10/21
1978	6/6-11/7	6/05-11/05	8/14-11/9
1979	6/9-11/5	6/9-11/11	
1980	6/15-10/5	6/15-10/08	
1981	6/10-10/12	6/11-10/22	
1982	6/3-9/16	6/24-10/06	10/5-10/26
1983	6/4-11/13	6/22-11/12	8/9-10/3
1984	6/3-9/14	6/9-10/07	
1985	6/5-10/21	6/23-10/22	
1986	6/6-10/29	6/16-11/14	
1987	6/4-11/2	6/19-11/20	
1988	6/9-11/12	6/18-11/14	
1989	6/4-10/30	6/5-10/28	
1990	6/3-10/30	6/6-11/13	8/14-10/25
1991	6/7-10/8	7/10-10/24	5/8-7/20
1992	6/2-9/26	6/8-10/15	
1993	6/3-9/30	6/13-10/14	
1994	6/4-9/24	5/20-10/5	6/18-9/11
1995	6/5-9/11	6/8-10/9	6/16-9/16
1996	6/6-9/11	Weir not used	6/22-9/16
1997	6/4-9/9	Weir not used	6/11-10/09
1998	6/4-9/13	6/9-10/13	6/9-10/13
1999	6/4-9/13	6/30-10/28	6/7-10/08
2000	6/3-9/12	6/16-10/18	6/9-10/07
2001	6/7-9/12	6/19-10/13	6/6-10/07
2002	6/8-9/11	6/23-10/18	6/7-10/19
2003	6/6-9/9	6/27-10/10	6/6-10/21
2004	6/3-9/12	7/6-10/13	6/7-10/19